

# The Boston Medical and Surgical Journal

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## Original Articles.

### ARMY TUBERCULOSIS EXAMINATIONS.

By HORACE GRAY, M.D., BOSTON,

First Lieutenant, M.R.C.

WHOLESALE examination of more than 20,000 men in various parts of a large cantonment needs the coöperation of so many persons who, unfortunately, have to be interrupted from their regular and different work, that memoranda of the many small things to be done seem conducive to speed and uniform results, even though at first glance they appear unduly fussy. Some of the following details are quoted from three articles,\* out of the many recent ones, while most are compiled from the somewhat varying methods used by members of the Special Tuberculosis Board which was busy from November, 1917-January, 1918, examining the command at Camp Devens. The first form is not a literal copy of the official memorandum actually issued, but is a revised model which might be suggested on the basis of experiences during the work. Some of the following

\* Francine, A. P., Price, J. W., and Trudeau, E. B.: Jour. A. M. A., Dec. 22, 1917, p. 2110.  
Downing, A. F.: BOSTON MEDICAL AND SURGICAL JOURNAL, Feb. 7, 1918, p. 177.  
Crownin, M. J.: BOSTON MEDICAL AND SURGICAL JOURNAL, Feb. 7, 1918, p. 187. This writer seems to interpret systolic heart murmurs more by insurance statistics than by S. G. O. Circular 21.

memoranda will, no doubt, need considerable revision to conform to official instructions issued between the time of meeting and appearing in print.

### MEMORANDUM I.

Division Surgeon's Office,  
Headquarters 76th Div., N.A.C.,  
Camp Devens, Mass., Jan. 3, 1918.

To all Unit Commanders:

1. The following instructions relative to tuberculosis examinations, to be conducted simultaneously in different parts of the cantonment by five (5) Tuberculosis Boards, are published for the guidance of all concerned.

2. Beginning Monday, Jan. 7, 1918, the commanding officers of the 301st, 302d and 303d F.A., and 301st and 302d Inf. will have their men in quarters at the following rate: about 40 men at 8 a.m., 40 at 9, and 40 at 10; and again at 1, 2 and 5 p.m.; daily except Saturday afternoons, Sundays and official holidays.

3. Companies will be detailed consecutively, not simultaneously.

4. Quarantined companies will be examined like the rest.

5. A nominal list (roster) of all officers on each staff, arranged by rank; of each regiment, arranged by rank; and of enlisted men in each

company will be furnished by that unit to the Board. Each list will be typewritten, in strict accordance with the detailed directions and samples furnished herewith.

6. Before examination each officer or soldier will fill in and sign a history blank. These blanks will be prepared by manifold in this office, from which they may be obtained by the regimental adjutant.

7. Quiet is essential to satisfactory examination, therefore:

- (a) The place will be the quietest available, usually upstairs in quarters.
- (b) At least two non-commissioned officers will be in attendance from 8 a.m. to 1.30 p.m. and from 1 to 4.30 p.m. to see that men walk quietly on the stairs and make no other noise in the neighborhood.

8. The service records will be brought to the examining room, in order that as each man is passed his record may be stamped: "Examined for tuberculosis and passed."

By Command of Brigadier General —.

— Major F.A., N.A., Adjutant.

#### MEMORANDUM II.

To the Members of the Tuberculosis Board:

1. The Tuberculosis Board will consist of the president (usually a major) and of five (5) local boards (usually called Board 1, Board 2, Board 3, Board 4 and Board 5).

2. Each Local Board will consist of three (3) medical officers (usually one captain and two lieutenants), of whom one (usually the captain) shall be appointed president of the Local Board by the president of the whole board.

3. To assist each Local Board the Division Surgeon will appoint a sergeant and three (3) men of the Hospital Corps, of whom one shall be competent to typewrite the necessary reports.

4. All members of the Board shall

- (a) Familiarize themselves with the Board president's typewritten orders from the S.G.O.
- (b) Familiarize themselves with Circular 20 (Lungs) and preferably also Col. Bushnell's article in the *Medical Record* or *Military Surgeon* for June, 1917, and also Circular 21 (Hearts).
- (c) Familiarize themselves with the other memoranda herewith, viz.: Memorandum to C.O., Memorandum to Company Clerks, Memorandum to Sergeant Hos-

pital Corps, Memorandum to Men Being Examined.

- (d) Discuss within the first few days of the work the nomenclature to which they have been accustomed to use in recording their findings, and agree so far as practicable on uniform terms.
  - (e) The following abbreviations are suggested: right, (R.); left, (L.); apex, (A.); upper lobe, (U.L.); middle lobe, (M.L.); lower lobe, (L.L.); breath sounds, (B.S.); broncho-vesicular breathing, (B.V.B.); bronchial breathing, (B.B.).
  - (f) Not notify the men examined of any abnormality which may be found; too often this results only in making the man neurotic and a plague to the regimental surgeon.
  - (g) "Six hours a day is a full day for this work if done as a routine. Each examiner should examine not less than sixty (60) nor more than seventy-five (75) new men a day. While the foregoing does not seem numerically a great deal or the hours very long, yet when one does it continuously day in and day out, and with attentiveness, it makes a very adequate and even exacting working day." (Price *et al.*)
  - (h) Either wear a gauze mask or take particular pains to avert the face. Six members of this Board were put to bed each for from three to seven days by throat infections. Weaver reports marked results from "masks of a double thickness of gauze, so shaped as to fit closely over the face from the chin well up over the nose, and held in place by two tapes tied behind the head."
  - (i) "Avoid sore ears by not continually pulling out and readjusting your ear pieces." (Downing.)
5. Each local president shall, in addition:
- (a) See that the adjutant of each regiment is provided on the day before examination with the four memoranda, each in sufficient quantity.
  - (b) See that the rosters turned in by each regiment have been correctly made, and if not return them for rewriting.
  - (c) Instruct the Hospital Corps men in their duties, including history-taking.
  - (d) Record daily on the blank prepared by



the president of the whole Tuberculosis Board—

- (i) The number of examinations done on that date by his Local Board.
- (ii) The total number of examinations up to date.

6. The report from the tuberculosis specialist in the cantonment to the president of the Tuberculosis Board will be a carbon copy of Form A, so fast as he prepares it for the S.G.O. When this form reaches the president of the Board he shall call a meeting of the local presidents with their rosters and furnish them with the diagnosis and disposition of each man who has been referred to the specialist. When the disposition of a man has been "Duty," the local president will simply put a check before his name on the roster as if he had never been held up. If the disposition has been "S. C. D." those initials will be marked before the man's name.

7. After all cases have been accounted for from Form A, each local president will have typewritten the following lists:

- (a) On each roster, page 1, typewrite the names of the absentees.
- (b) On each roster, last page, type the summary and figures.
- (c) Make a list of S.C.D.'s by regiments in triplicate.
- (d) Make an aggregate absentee sheet in triplicate.
- (e) Make an aggregate summary sheet in triplicate, Form B.

#### MEMORANDUM III.

To Company Clerks:

#### Nominal List for T.B. Board.

This roster is required by the War Department, Surgeon-General's Office, to be uniform for the different organizations throughout the division, as follows:

1. Size of paper to be the same as this: 8 x 10½ inches.
2. Grade of paper to be the same as this; letter paper, not onion skin or mimeograph paper.
3. Triplicate.
4. Headings (address, date, company, rank, name, etc.) to be like accompanying specimen.

5. Type (capitals, small letters, underlining, etc.) to be like accompanying specimen.

6. Spacing to be like specimen. Use of dividers is advised.

7. Surnames to be put first, among officers as well as men; and followed by one name in full (e.g., Smith, John W.—not J. W. Smith).

8. Officers of the entire regiment or corps, whether headquarters staff, company, or attached, are to be put on a single list, arranged in dictionary order under each rank.

9. Enlisted men to be in same order as their service records in their Company Orderly Room, either alphabetically under each rank, or in one alphabetical list with rank after the name.

10. Absentees to be included—not grouped separately.

11. Names *not* to be numbered.

12. Pages are to be numbered, at bottom in the middle; including page (1).

13. On each subsequent page repeat the heading, like page (2) of specimen.

14. On last page, right lower corner, put T.B. summary, as per page (3) of specimen.

15. The company clerk, or whoever typewrites this roster, will initial these directions, clip them together with the specimen and the triplicate, and have them at the headquarters of the Tuberculosis Board before noon on the day prior to examination.

16. The company clerk will, on the day of examination, make out a list of absentees for the company commander.

#### SPECIMEN NOMINAL LIST, MEN.

Roster of Battery C, —Field Artillery, Camp —, Mass., Jan. 3, 1918.

Names,

SERGEANT,

Cedar, William E.

Chisholm, Ralph

etc., in dictionary order.

CORPORAL,

all alphabetically.

PRIVATES,

all alphabetically.

This summary to go only on the last page of the roster of the enlisted men of the company:

Total number men examined .....

Total number T. B. ....

Percentage T.B. ....

Signed .....

M.R.C.

## SPECIMEN NOMINAL LIST, OFFICERS.

Roster of Officers. — Field Artillery, Camp  
—, Mass., Jan. 3, 1918.

## Names,

COLONEL,

Doe, John

LT.-COLONEL,

Brown, William

MAJOR,

Black, Thomas N.

Rowe, Robert

White, Richard S.

CAPTAIN,

all in regiment, alphabetically.

1ST LIEUTENANT,

all in regiment, alphabetically.

2D LIEUTENANT,

all in regiment, alphabetically.

Total number officers examined .....

Total number T.B. ....

Percentage T.B. ....

Signed .....

M.R.C.

## MEMORANDUM IV.

## To the Sergeant Hospital Corps:

1. Each examiner should have one enlisted man of the Hospital Corps in attendance.

2. Each man to be examined to be given a pencil and a history blank.

3. See that he is assisted in filling it out.

4. Tell him to read Memorandum V.

5. Keep each examiner supplied constantly with one man for examination and two more watching close by.

6. If the examiner finds both heart and lungs normal he will mark the history blank "O.K.," put his initials on it, and send the man out. The sergeant will take up the history sheet, stamp it and the service record (at paragraph 11, page 5), and put a check before the man's name on the roster.

7. If, however, the examiner finds any abnormalities in heart or lungs he will note his findings on the history sheet and pass it to the H.C. man in attendance. He will take care that this is not examined by the soldier, but will present it and the man for examination to the president of the Local Board. If he thinks necessary, he will consult the third member of the Board. The examinee will then be either (a) O. K.'d, or (b) instructed to report to the Board for re-examination, on a specified date, at some central point, usually the regimental infirmary. In this case the hospital sergeant

will put nothing before the man's name on the roster and after it will write "Re-ex. + the date," and he will keep this history sheet in a separate clip; or (c) instructed to report to the regimental surgeon the following morning at 8 a.m. In this case the hospital sergeant will put nothing before the man's name on the roster and after it will write, "Base T.B." He will keep the history blank and physical findings and put this paper in an envelope addressed Major X. Y. Smith —, Tuberculosis Specialist, Base Hospital, Camp Devens, Mass., through Regimental Surgeon, — Inf. At the end of the day he will deliver this envelope to the Regimental Surgeon.

## MEMORANDUM V.

## To Those Being Examined:

1. Strip off all clothes above the waist.
2. Step up close to the doctor; stand at ease, with muscles relaxed.
3. Put left hand on hip.
4. Turn head to the right.
5. Hold handkerchief with right hand to your mouth so that you will not breathe in his face.
6. Breathe entirely through your mouth.
7. Breathe way out; cough (only a small cough; only one cough; only *after* breathing out).
8. Change hands; breathe out; cough.
9. Left about, face; breathe out; cough.
10. Step aside for the next man. Meanwhile hop 100 times on your left foot and then return to the doctor.

## SPECIMEN HISTORY BLANK.

Name (print, with last name first):

Organization:

Btry. .... F.A. .... Eng. ....

Co. .... Inf. .... Dep. Bg. ....

Troop .... Cav. .... etc. ....

Home address .....

Previous occupation .....

Date of arrival at Camp Devens .....

*F. H.* Have any of your near relatives had consumption? If so, state relationship and whether death or recovery occurred. By near relatives is meant parents, brothers and sisters, or wife.

P. H. Have you ever had pleurisy with fever? If so, give year if possible. The chief symptom of pleurisy is sharp pain in the chest, increased by breathing and lasting days or weeks.

Have you ever coughed up blood or blood-streaked sputum. If so, when?

Have you ever had a cough lasting a month or more? When?

Have you had a recent cold with cough?

Have you ever had night sweats? If so, when?

Had you lost or gained as much as 5 lbs. weight during the six months *before* coming to Camp? If so, how many pounds?

How much weight have you lost or gained since coming to camp?

Have you lost or gained strength since coming to Camp?

Have you ever had rheumatic fever or St. Vitus dance? When?

Are you short of breath on slight exertion, such as walking upstairs?

Signed .....

#### SPECIMEN DAIRY REPORT.

Camp Devens, Mass.,

—1918.

From: —, President Local Tuberculosis Board No. 2, examining at barracks of B Company, 301st Infantry.

To: { Tuberculosis } Specialist, Base Hos-  
pital, Camp Devens, Mass.  
{ Cardiovascular }

Through the Regimental Surgeon.

Subject: Examination of chest.

1. The following abnormalities found today are referred for study:

Name (surname first) .....

Organization .....

Findings .....

Lt. M.R.C.

(Plenty of these forms may be mimeographed before the work begins, then each day a triplicate will be filled in by the Local Board:

1. Original, with histories pinned on, to reg. surg. for transmission to base.

2. A carbon, with histories pinned on, to president whole T.B. Board.

3. A carbon, with histories pinned on, for president Local T.B. Board to keep.)

## A STUDY OF THE PHYSICAL CONDITION OF ONE THOUSAND DELINQUENTS SEEN IN COURT.

By V. V. ANDERSON, M.D., M.A.,

Medical Director, Municipal Court of Boston;

AND

CHRISTINE M. LEONARD, M.D.,

Assistant Medical Director, Municipal Court of Boston.

THE original purpose of this study was to determine what part—if any—routine physical examinations might play in the disposition of a delinquent's case in court, and later in the institution of reconstructive measures while on probation. Such a consideration seemed clearly worth while, particularly in view of an ever-widening scope of interest manifested by the court in the needs, as well as the deeds, of the individual delinquent.

The old and archaic conception of the judicial function as one limited purely to the determination of guilt or innocence; and in case of guilt, the imposition of fines and sentences, has fortunately disappeared along with other equally archaic and fruitless theories. In its stead we have come to realize that the essential problem facing the court in connection with any individual who has offended against the law and order of society is the problem of readjusting that person to society.

It needs little argument to show that in order for the court to attain an adequate readjustment of any delinquent it must take into consideration all the facts in the case; it must take into consideration the individual and his needs, and deal understandingly with the offender, as well as legally with his offense.

In the accomplishment of this function the court may employ certain tools—most important of which are probation and penal treatment.

In probation it possesses an agency of far-reaching usefulness in this direction, whose capacity for effective service in readjusting human individuals, in restoring delinquents to the community, safe and free and capable of taking their part in the complex demands of social life is scarcely realized; and yet the keenness, the sharpness and the efficiency of this tool can be dulled and impaired by improper use. For, with the opportunity to rehabilitate and readjust himself while on proba-

tion, there should go in the case of every delinquent an intelligent understanding of what is required to accomplish this rehabilitation.

The vital importance of the physical condition in this connection, particularly in relation to his economic efficiency, his ability to support himself, cannot be overestimated. It needs little argument to show how exhausting physical diseases can so impair one's economic efficiency, so hamper one's ability to earn a living, as to render him a social misfit, causing him to drift from place to place, lowering his resistance to alcohol, drugs and such, and, in short, bringing about the very conditions that probation should seek to prevent.

But that which is of most far-reaching importance in this connection is the necessity for seeing to it that the delinquent be not a danger to the community. Reference is made to certain communicable diseases, regarded as dangerous to the public health—from which offenders in court are commonly suffering. We refer to venereal disease, considered in many quarters as the most serious menace facing the human race.

It is clearly the duty of those having to do with delinquents to see to it that these conditions are sought out and treated, if such individuals are to be returned to the community.

With the aim in view of showing the practical relationship of such facts as those above mentioned, to the routine work of the court, the following study was undertaken.

Records of the last 1000 cases examined were taken from the files, and the physical condition of each person noted, also the relationship which his physical condition bore—if any—to his economic efficiency. Case records of both men and women were included in this series.

Additional tables of a group of six hundred consecutive venereal studies are included.

The following table gives a general picture of the physical health of these 1000 individuals. Those rated *good* were practically free from any condition that might impair health. Those rated *fair* were suffering from minor ailments of little consequence to general health, and produced very little impression on the physical strength of the individual. Those rated *poor* were sick people, and urgently in need of medical treatment. Those rated *bad* were emergency hospital cases.

TABLE I.

SHOWING PHYSICAL CONDITION OF 1000 DELINQUENTS IN COURT.

Good physical condition .....	208
Fair physical condition .....	455
Poor physical condition .....	327
Bad physical condition .....	15

668 individuals, or 66.8% of our cases, were in good or fair health.

342 individuals, or 34.2%—one out of every three persons—was in poor or bad health, and in such physical condition as to warrant urgent medical treatment.

Just what relationship these figures bear to adult offenders as a whole, it is hardly safe to state. It is interesting, however, in this connection to refer to a recent study of immoral women, made by the writer, in which 44% of the women were in poor or bad physical condition from diseases other than venereal (tuberculosis, asthma, Bright's disease, heart disease, etc.). Should anything like such findings be borne out in a study of other groups of adult offenders, then our above estimate among these 1000 cases (34.2%) could hardly be considered extravagant.

Following is a partial list of the conditions from which these individuals were suffering:

TABLE II.

SHOWING A PARTIAL LIST OF PHYSICAL CONDITIONS OTHER THAN VENEREAL, FOUND AMONG 1000 DELINQUENTS.

Abscesses .....	25
Skin diseases .....	150
Diseases of nervous system .....	200
Heart disease .....	100
Bronchitis (acute and chronic) .....	144
Tuberculosis .....	25
Pregnancy .....	28
Pyorrhea .....	50
Pelvic conditions in women (salpingitis, uterine prolapse, etc.) .....	26
Thyroid disease .....	20
Rhinitis .....	38
Enlarged tonsils .....	65
Glandular enlargements .....	60
Injuries and diseases of bones and joints (arthritis, ankylosis, fractures and spinal curvature) .....	65
Arteriosclerosis .....	30
Varicose veins .....	45
Tumors .....	15
Ulcers .....	150
Carious teeth .....	20
Defect and diseases of eye .....	125
Defective hearing .....	90
Laryngitis .....	25
Tonsillitis .....	13
Stomatitis .....	10
Bright's disease .....	7
Paralysis .....	8

Other conditions, such as hydrocele, rectocele, varicocele, cysts, etc., were found.

Something more than fatherly talks, intelli-

gent advice, general supervision and securing employment is needed to solve the problem presented by the delinquent whose physical endurance is rapidly diminishing under a progressive Bright's disease or tuberculosis, or the delinquent who is scattering broadcast into the community syphilis and gonorrhea. These are conditions of which he may be entirely unaware, and yet which are of more vital importance to his future welfare and that of the community in which he lives, than any other consideration.

Probably one of the most important measures utilized in rehabilitating the delinquent on probation is steady employment. The following table will give some idea of how these 1000 delinquents have demonstrated their ability in this direction. About 626, or 62.6%, were considered self-supporting, while 374, or 37.4%, were not self-supporting.

TABLE III.

SHOWING ECONOMIC EFFICIENCY OF 1000 DELINQUENTS SEEN IN COURT.

Regularly employed .....	243
Irregularly employed .....	383
Odd jobs .....	90
At home .....	146
Never worked .....	138
	<hr/> 1000

In this connection it is well to bear in mind that 66.8% of these 1000 individuals were in good or fair health, and that 34.2% were in poor or bad health. Some correlation between the two seems evident. This is brought out more clearly and in detail in the following table:

TABLE IV.

SHOWING RELATIONSHIP BETWEEN PHYSICAL CONDITION AND INDUSTRIAL EFFICIENCY OF 1000 DELINQUENTS.

	REGULAR	IRREGULAR	AT HOME	NO WORK	ODD JOBS	TOTAL
Good	121	68	11	1	2	203
Fair	114	262	37	18	24	455
Poor	8	53	95	111	60	327
Bad	0	0	3	8	4	15
Total	243	383	146	138	90	1000

Thirty-five per cent. of those found to be in good or fair physical condition had been steadily employed, while only 2% of those found to be in poor or bad physical condition had been steadily employed.

Eighty-five per cent. of those found to be in good or fair physical condition had been and still were self-supporting, while only 18% of those found to be in poor or bad physical condition had been and were still self-supporting.

The chances for being self-supporting were

more than four to one in favor of the individual in good physical condition.

Ninety-six per cent. of those regularly employed were found in good or fair physical condition, while only 3% were found to be in poor or bad physical condition.

Eighty-six and three-tenths per cent. of those who were rated as "never worked" were found to be in poor or bad physical condition, while only 13.7% were found to be in good or fair physical condition.

That there is a relationship, and a very definite one, between an individual's regularity of employment and his physical condition seems to require no further argument. So high is this correlation, that one can, without fear of denial, assert that really successful probation presupposes a knowledge of the physical condition of the delinquent in advance of his treatment. And, further, really successful probation finds a rather close correlation between an individual's physical rehabilitation and his moral readjustment.

There is another and darker side to this question,—one which is of special importance to the court in fulfilling its protective function to the community, particularly in view of the recent stand taken by the National Government as to the seriousness of the menace which this condition referred to presents. We have in syphilis and gonorrhea two well-recognized dangers to the health of the community—two diseases fraught with the most serious consequences to the individual and to the race.

Every effort of our national, state and local health authorities is now being bent in the direction of placing those infected under treatment.

It goes without saying that of all institutions, our courts, because of the very nature of their position in the community, are not only willing, but anxious, to coöperate in this direction.

With a view to determining the extent of the problem presented by these two diseases as found amongst delinquents in court, a group of six hundred (600) consecutive cases were gone over. The cases selected represented the average daily "run of the mine," inasmuch as it is the policy of the medical service of this court to make a venereal study of every offender referred for examination, no matter whether there is any suspicion of past venereal infection or not.

The frequency with which these conditions



were found among six hundred (600) individuals is shown in the following table:

TABLE V.

SHOWING FREQUENCY OF VENEREAL DISEASE AMONG 600 DELINQUENTS.

No. cases examined .....	600
Syphilis .....	182
Gonorrhea .....	133
Combined .....	32
Doubtful cases .....	27
Per cent. of cases examined having venereal disease .....	47%

Forty-seven per cent. of these individuals were suffering from one or both of these diseases. An additional 4.5% had doubtful blood and smears. Practically every other person in this group had syphilis or gonorrhea, or both conditions. Without a routine medical examination there is no safe and sane method of determining in court whether an individual is free from venereal infection.

These conditions are not, as is generally supposed, limited to purely chastity offenders; they are widely scattered among all classes of offenders. The following table will make this more clear:

SHOWING VENEREAL DISEASE AS RELATED TO TYPE OF OFFENSE COMMITTED.	TOTAL									
	CHASTITY	DRUNK	LARCENY	POSSESSION OF DRUGS	VIOLATION OF LIQUOR LAW	BASTARDY OR FORNICATION	STOLEN CHILD	NEGLECT OF CHILD	ASSAULT AND BATTERY	AMOROUS
Syphilis .....	105	43	21	6	2	1	1	0	2	0
Gonorrhea .....	85	18	23	3	0	1	0	2	0	0
Combined .....	16	9	6	0	0	0	0	0	1	0
Total number of venereal cases .....	174	52	38	9	2	2	1	2	3	0
Number doubtful cases .....	15	15	0	1	0	1	0	0	0	1
Per cent. of venereal cases .....	57.4%	38.8%	33.9%	53%						

Three hundred and three cases were so-called offenders against chastity; of these 57.4% were

suffering from syphilis or gonorrhea, or both. An additional 4.9% had doubtful bloods and smears.

There were 134 cases of drunkenness; 38.8% of these individuals had venereal disease, while an additional 6.5% were doubtful cases.

There were 112 cases of larceny; of these individuals 33.9%, or one out of every three cases, had syphilis or gonorrhea, or both.

There were 17 individuals arrested for possession of drugs, and 53% had venereal disease.

There were three arrested for violating the liquor law, two of whom had syphilis.

Three were arrested for assault and battery; all three had venereal disease.

In short, these conditions are not limited to any one special type of offender in court, but are found common among delinquents in general.

It is the size and extent, as well as the seriousness of this problem to which we wish to call special attention. We are not dealing with a condition limited to the prostitute class; we are not dealing with a situation of merely secondary importance.

In syphilis and gonorrhea we have two diseases that are more far-reaching in the consequences with which they threaten the individual and the race than any other menace. These two conditions are found affecting all types of offenders seen in court. The gonorrheal prostitute is no more of a public danger than the syphilitic barber, or the pugnacious restaurant cook arrested for assault and battery, who was found in the infectious stage of syphilis.

The problem is large enough and is serious enough to demand a broad and comprehensive policy on the part of our courts,—a policy calling for a more routine investigation of the physical condition and the possibilities of each offender prior to his disposition.

## SUMMARY.

The original purpose of this study was to determine what part, if any, routine physical examination might play in the disposition of a delinquent's case in court, and later in the institution of reconstructive measures while on probation.

For this purpose the records of our last 1000 cases were taken from the files, and the phys-

ical condition of each person noted; also the relationship which the physical condition bore, if any, to his economic efficiency.

Six hundred sixty-eight individuals, or 66.8% of our cases, were in good or fair health; 342 individuals, or 34.2%—one out of every three persons—were in poor or bad health, and in such physical condition as to warrant urgent medical treatment.

About 626, or 62.6%, were considered self-supporting; while 374, or 37.4%, were not self-supporting.

Some correlation between these figures is evident.

Thirty-five per cent. of those found to be in good or fair physical condition had been steadily employed; while only 2% of those found to be in poor or bad physical condition had been steadily employed.

Eighty-five per cent. of those found to be in good or fair physical condition had been, and still were self-supporting; while only 18% of those found to be in poor or bad physical condition had been and were still self-supporting. The chances for being self-supporting were more than four to one in favor of the individual in good physical condition.

Additional facts are included bearing upon the frequency of venereal disease among a group of 600 consecutive cases studied.

Forty-seven per cent. of these individuals were suffering from one or both of these diseases; an additional 4.5% had doubtful bloods and smears.

Of these 600 cases, 303 were so-called offenders against chastity; of these, 57.4% were suffering from syphilis or gonorrhea, or both; while an additional 4.9% were doubtful cases.

There were 134 cases of drunkenness; 38.8% of these individuals had venereal disease; an additional 6.5% were doubtful cases.

There were 112 cases of larceny. Of these individuals, 33.9%, or one out of every three cases, had syphilis or gonorrhea, or both.

There were 17 individuals arrested for possession of drugs; 53% of these had venereal disease.

Other types of offenders in court showed a correspondingly high frequency of these conditions.

In short, the conclusion reached from this study is that venereal disease is not limited to any one type of offender in court, but is found common among all classes of delinquents, and

that a policy calling for a more routine investigation of the physical condition and the possibilities of each offender, prior to his disposition, would seem justifiable.

## IDENTIFICATION OF SOLDIERS AFTER DEATH BY HEAD MEASUREMENTS.

BY ARTHUR MACDONALD,

*Anthropologist, Washington, D. C.*

I DESIRE to give some reasons why, in measuring soldiers for fitness to enter military service, the maximum length and maximum width of the head should be taken, along with the measurements of height, girths of chest and weight, and with other data required in the physical examination of soldiers.

After the war, and probably during the war, Americans will desire to know, if not insist on knowing, all that is possible about their lost, missing and buried ones in Europe. Many will ask questions something like these: "Does the grave, marked by the provisional cross in the military cemetery, really contain the body of our son, brother, or father?" "Is the body of the prisoner who died in the enemy's hands, one of our family?" These and similar inquiries are sure to arise among American citizens, who constitute a nation which is extremely humanitarian, and a people who have shown themselves most generous in their war dealings. The necessity of identification in order to receive insurance money from the Government and from private companies, in difficult, doubtful and exceptional conditions, is apparent to every one. When it is a question of receiving five or ten thousand dollars insurance, settlements against exhuming bodies, breaking open sealed caskets and the like will soon disappear. Not only this, but doubtless various fraudulent schemes will be attempted in the identification of the dead in order to obtain money.

If the French are asked to help in identification they will doubtless do all they can, and they are scientifically most expert in identification methods.

### MAXIMUM LENGTH AND MAXIMUM WIDTH OF HEAD.

After soldiers are buried singly or in groups, and often in great haste, many of the usual means of identification may be lost, missing, or

mixed with those of other soldiers, and, owing to the many vicissitudes of war, such methods of identification may be of little or no avail.

If, however, the maximum length and maximum width of the head of a soldier have been recorded, these two measurements will be available for purposes of identification of the dead, and this, with collateral evidence of the condition of the teeth as recorded by the dentist at home, and with the additional evidence as to age of the skeleton, as indicated by degrees of ossification, will greatly facilitate and increase the probability of identification, where otherwise it might be very difficult, if not impossible to accomplish.

#### COLLATERAL EVIDENCE WITH THE HEAD MEASUREMENTS.

*Teeth.* Dentists usually keep a record of their daily work for each individual as to teeth filled, nature of filling, class, size, form, position and regularity of teeth treated; degree of decay, much or superficial, broken or with roots only existing, teeth missing. Such and other details familiar to dentists, combined with the two head measurements, would be very valuable either as positive or negative evidence of identity.

*Synostosis.* This is one of the first signs of age in the skeleton; the spot where it first appears varies with age. The most frequent place is at a point on the sagittal suture at the union of its posterior fifth with its anterior three-fifths, where the suture is clearly marked *obélion*. If the suture is entire, the individual is about 35 years of age or less. If the posterior sagittal point is commencing to close in, the individual is about 40 years of age. The ossification of the coronal suture close to bregma would indicate a person 50 or more years of age. If the temporal suture is closed, it indicates an age of 66 years or more. In the white race ossification generally proceeds from behind forwards; in the negro race it is the reverse. Wearing away of teeth and character of jaw can give idea of age.

#### CONDITION OF SKELETON IN GENERAL AS INDICATION OF AGE: OSSIFICATION OF LONG BONES.

A few of many points might be mentioned: (a) at the age of 16, the calcaneum is ossified throughout; (b) at 17, the greater trochanter is united to the head of the femur; (c) at 18, the superior extremity of the femur is united in its

entirety to the shaft; (d) at 19, the epiphyses of the metatarsal bones are united to the body; (e) at 20, the epiphyses of the metacarpal bones are united to the body; (f) at 45, the xiphoid cartilage is ankylosed to the sternum; (g) at 50, the coccyx is ankylosed to the sacrum. These and other general statements, based upon many authorities, would help much, as collateral evidence, with the head measurements.

Data taken from the regular physical examination of the soldiers, including marks, scars, osseous and other peculiarities, might be of additional service in the identification after death, according to the condition of the body, or degree of decomposition, etc.

#### HEAD MEASUREMENTS OF THE LIVING COMPARED WITH THOSE OF THE DEAD.

In a study of 1139 skulls of persons of different nationalities, and who at death were in various conditions of nutrition, Czekanowski, a Polish writer, gives the various thickness of the soft parts of the skull at the place of maximum width and maximum length. Taking an average of these, I find 5.1 millimeters thickness of the soft parts of the maximum length and 6.9 millimeters for those of the maximum width. In comparing, therefore, the measurements of the skull, where the soft parts are decayed away, with the measurements of the head of the living person to whom the skull is supposed to belong, 5 millimeters should be added to the maximum length and 7 millimeters (avoiding fractions) to the maximum width of the skull.

In addition to this, the cephalic index of the living subject can be compared with that of his skull after death, by adding two units to the cephalic index of the skull, as is done by Topinard and other leading authorities.

Thus, if it be claimed that a decomposed body is that of a dead or missing soldier, whose head we know to have been dolichocephalic, whether the skull of the body in question is dolichocephalic or not can easily be determined, and if not dolichocephalic, it is quite evident that a mistake has been made, if not fraud committed. If, however, the skull be dolichocephalic, the degree of dolichocephaly can be found and its correspondence with the head of the previously living subject determined. This, with the collateral evidence from data as to teeth and ossification signs of age of the skull and rest of the skeleton, will greatly aid in the identification of heads of the living with their skulls:

after death, and both positively and negatively. The negative evidence can prevent much fraud.

#### TIME REQUIRED AND EXPENSE OF TAKING THE HEAD MEASUREMENTS.

The time necessary to take the maximum length and maximum width of head is one minute. The head measurements could be taken best along with the measurements of height, chest girths, etc. If this is not done by those making the regular measurements required in the physical examination of soldiers, it could be done at other times, and with a force of ten persons, from three to four thousand could be measured in a day. The calipers for making the measurements would cost about ten dollars a pair. The salaries of the force of ten or more, if thought best to increase it, could be arranged as are the salaries of those now conducting the psychological measurements of the soldiers.

#### PHYSICAL STATUS OF THE AMERICAN PEOPLE.

The physical measurements of our young men which are being made in connection with their entrance into military service, is a beginning on a large scale of establishing the physical status of the American people. The measurements of maximum length and width of head, furnishing the cephalic index, are the two most important physical measurements of the body. In most all scientific studies of races and peoples, these two head measurements are taken. The physical and psychological measurements now being taken of the soldiers would not only have their scientific value greatly increased by the addition of these two head measurements, but the physical status of the American people would be made comparable with that of other peoples, races and nations.

The American people, who are paying and sacrificing for the war, are entitled to such knowledge, not only on account of the practical reasons for identification already set forth, but for its permanent and general value to the whole American nation now, and especially in the future. And unless these most important measurements are taken now, requiring but one minute of time, this opportunity of making all the measurements—mental, moral and physical—of much more present and permanent value, will practically be lost.

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#### PATHOLOGICAL CLASSIFICATIONS OF PULMONARY TUBERCULOSIS.

By HERBERT F. GAMMONS, M.D., CARLSBAD, TEXAS.

THE resulting reaction of tissues to the injury by the entrance of the tubercle bacillus, depends upon the virulence of the bacilli, the resistance of the host, the number of bacilli and the length of time of contact of the bacilli with the tissues. Furthermore, the treatment of the infected person influences the pathological condition to a great extent.

It is very uncommon to find a single stage of disease in a tuberculous person if the disease has been present for some time; for instance, it is not uncommon to find, in the same lobe of the lung, caseation, necrosis, inflammation, fibrosis and calcification.

However, it is possible to divide the disease, according to its pathology, into inflammatory and ulcerative types, and these two types may be subdivided into fibro-inflammatory or fibro-ulcerative of the incipient moderately advanced or advanced stage, as the case may be, according to the other manifestations of the disease.

The diagnosis of these conditions may be made clinically by stethoscopic examination and also by observation of the sputum and by the use of the x-ray; the inflammatory cases having, as a rule, broncho-vesicular or, possibly, bronchial breathing in some instances, depending on the site of the lesion; some cases, however, do not have any modification of the vesicular breathing, but they do show fine râles of a crepitant nature.

The ulcerative case shows at some time mucopurulent or purulent sputum, with elastic-tissue fibers, and stethoscopic examination shows signs of cavitation, at times very slight, including marked variation in the vesicular respiration, increased sound transmission and râles of a mucous character, depending on the stage of the ulceration.



X-ray examination shows all degrees of shadows, depending on the stage of the ulceration, while in simple inflammatory cases, where the inflammation is more or less diffused, the x-ray examination has been negative. When there is a faint shadow surrounding a deeper shadow on x-ray examination, there is usually active inflammation in this faint shadowy area which is surrounding the old fibroid or ulcerative process that gave the darker shadow.

The classification of pulmonary tuberculosis, as used by the National Association for the Study and Prevention of Tuberculosis until recently, has dealt more with the length of time of infection, and the area of infection, than with the pathology of the disease.

Rathburn's modification<sup>1</sup> of previous classifications increases the flexibility of the previous classifications; however, it seems probable that the classification of pulmonary tuberculosis may be made a little more useful from a therapeutic and prognostic standpoint, if we consider the disease from the standpoint of its pathology, at the same time considering the extent of involvement, length of time of disease, resistance of the patient, and virulence of the infecting organisms, as shown by the constitutional symptoms.

The treatment of these different pathological conditions in pulmonary tuberculosis is not all the same for each type. For instance, a simple inflammatory incipient case, with no constitutional symptoms, does not need the rest that other types need. The moderately advanced ulcerative case often needs more rest than the advanced fibro-inflammatory case which has no constitutional symptoms.

The prognosis of all these types and stages depends on the treatment, to a certain extent; however, the far-advanced cases of the fibro-inflammatory type, and without constitutional symptoms, has not only developed his immunity but he has also developed a great mechanical resistance in the affected areas, as has been shown by Krause<sup>2</sup>, and will often do better and live longer, with proper treatment, than the active inflammatory type of the incipient stage.

By using the present classification of Rathburn<sup>1</sup> and adding the pathological type, as is found by observing the sputum and by examination with the stethoscope and x-ray, it is probable that we may give the patient more

definite advice as regards the prognosis and treatment of his disease.\*

## REFERENCES

- <sup>1</sup> Rathburn: American Review of Tuberculosis, Vol. 1, No. 1, p. 1.  
<sup>2</sup> Krause: American Review of Tuberculosis, Vol. 1, No. 2, p. 65.

## IDIOPATHIC EPILEPSY A SYMPATHICOPATHY.

BY EDWARD A. TRACY, M.D., BOSTON.

(Continued from page 780.)

Nov. 8, 1916. Obs. 278. 8 p.m. Reaction time: left forearm, 15 seconds; right forearm, 14 seconds; left face, 10 seconds; right face, 9 seconds. Patient had an attack of convulsions at 4 a.m. the next morning.

Nov. 9, 1916. Obs. 282. 8 p.m. Reaction time: left forearm, 21 seconds; right forearm, 15 seconds; left face, 8 seconds; right face, 8 seconds. Patient had two attacks of convulsions in the early morning following.

Nov. 10, 1916. Obs. 286. 8 p.m. Reaction time: left forearm, 15 seconds; right forearm, 18 seconds; left face, 9 seconds; right face, 8 seconds. Patient had an attack at 8 o'clock the following morning.

Nov. 18, 1916. Obs. 318. 9 a.m. Reaction time: left forearm, 14 seconds; right forearm, 13 seconds; left face, 11 seconds; right face, 14 seconds. Patient had an attack at 11 a.m., two hours after the observation was made.

Obs. 320. 7 p.m. Reaction time: left forearm, 14 seconds; right forearm, 13 seconds; left face, 15 seconds; right face, 11 seconds. Patient had an attack at 3 o'clock the next morning.

Nov. 19, 1916. Obs. 323. 7 p.m. Reaction time: left forearm, 12 seconds; right forearm, 11 seconds; left face, 11 seconds; right face, 11 seconds. Patient had convulsions at 3 o'clock the next morning.

Nov. 20, 1916. Obs. 328. 7.45 p.m. Reaction time: left forearm, 16 seconds; right forearm, 15 seconds; left face, 11 seconds; right face, 9 seconds. Patient had convulsions at 3 o'clock the next morning.

Nov. 21, 1916. Obs. 333. 7.45 p.m. Reaction time: left forearm, 20 seconds; right forearm, 15 seconds; left face, 10 seconds; right face, 11 seconds. Patient had convulsions at 5 o'clock the next morning.

Nov. 28, 1916. Obs. 369. 7.30 p.m. Reaction time: left forearm, 11 seconds; right forearm, 14 seconds; left face, 10 seconds; right face, 9 seconds. Patient had convulsions the next morning at 9 o'clock.

Dec. 17, 1916. Obs. 443. 7 p.m. Reaction time: left forearm, 13 seconds; right forearm,

\* The schema, as worked out by Rathburn, offers the following combinations: Incipient, Moderately Advanced and Advanced, A, B, and C; the suffixes denoting, respectively: Slight or no symptoms; Moderate symptoms, or Severe symptoms.



14 seconds; left face, 11 seconds; right face, 10 seconds. Patient had convulsions the next morning at 8.30 o'clock.

Dec. 23, 1916. Obs. 462. 8 p.m. Reaction time: left forearm, 13 seconds; right forearm, 11 seconds; left face, 10 seconds; right face, 11 seconds. Patient had convulsions at 4 and 8.40 o'clock the next morning.

Jan. 1, 1917. Obs. 485. 7 p.m. Reaction time: left forearm, 15 seconds; right forearm, 11 seconds; left face, 11 seconds; right face, 9 seconds. Patient had convulsions at 7.45 o'clock the next morning.

Jan. 9, 1917. Obs. 512. 7.30 p.m. Reaction time: left forearm, 17 seconds; right forearm, 10 seconds; left face, 13 seconds; right face, 10 seconds. Patient had convulsions at 5 o'clock the next morning.

Jan. 15, 1917. Obs. 530. 8.30 p.m. Reaction time: left forearm, 12 seconds; right forearm, 15 seconds; left face, 11 seconds; right face, 11 seconds. Convulsions at 5 o'clock the next morning.

Jan. 25, 1917. Obs. 557. 8 p.m. Reaction time: left forearm, 17 seconds; right forearm, 17 seconds; left face, 11 seconds; right face, 10 seconds. Convulsions at 6 o'clock the next morning.

Jan. 26, 1917. Obs. 560. 8 p.m. Reaction time: left forearm, 20 seconds; right forearm, 19 seconds; left face, 10 seconds; right face, 11 seconds. Convulsions at 3 o'clock the next morning.

Feb. 6, 1917. Obs. 585. 7.30 p.m. Reaction time: left forearm, 10 seconds; right forearm, 15 seconds; left face, 9 seconds; right face, 11 seconds. Convulsions followed in the early morning at 1.30 and 2.30 o'clock.

Feb. 13, 1917. Obs. 596. 7.30 p.m. Reaction time: left forearm, 15 seconds; right forearm, 15 seconds; left face, 11 seconds; right face, 11 seconds. Convulsions during the night and again at 7.30 o'clock the next morning.

Feb. 21, 1917. Obs. 615. 7 p.m. Reaction time: left forearm, 16 seconds; right forearm, 10 seconds; left face, 11 seconds; right face, 10 seconds. Convulsions the next morning at 9 o'clock.

March 3, 1917. Obs. 639. 8 p.m. Reaction time: left forearm, 14 seconds; right forearm, 12 seconds; left face, 10 seconds; right face, 10 seconds. Convulsions followed at 4 o'clock the next morning.

March 28, 1917. Obs. 682. 8 p.m. Reaction time: left forearm, 13 seconds; right forearm, 10 seconds; left face, 10 seconds; right face, 9 seconds. Convulsions at 3 o'clock and 7.30 o'clock the next morning.

March 31, 1917. Obs. 691. 7.30 p.m. Reaction time: left forearm, 18 seconds; right forearm, 20 seconds; left face, 11 seconds; right face, 10 seconds. During the night had two attacks of convulsions.

April 6, 1917. Obs. 709. 8 p.m. Reaction, time: left forearm, 11 seconds; right forearm,

11 seconds; left face, 10 seconds; right face, 10 seconds. Convulsions during the night and the next morning.

May 1, 1917. Obs. 790. 7 p.m. Reaction time: left forearm, 19 seconds; right forearm, 16 seconds; left face, 15 seconds; right face, 11 seconds. Convulsions at 2.30 and at 6 o'clock the next morning.

May 2, 1917. Obs. 794. 8 p.m. Reaction time: left forearm, 11 seconds; right forearm, 13 seconds; left face, 14 seconds; right face, 10 seconds. Convulsions at 5 o'clock the next morning.

May 3, 1917. Obs. 798. 7.30 p.m. Reaction time: left forearm, 19 seconds; right forearm, 20 seconds; left face, 13 seconds; right face, 9 seconds. Convulsions that night at 1.30 o'clock.

May 16, 1917. Obs. 847. 8 p.m. Reaction time: left forearm, 17 seconds; right forearm, 23 seconds; left face, 10 seconds; right face, 9 seconds. Convulsions next morning at 4 o'clock.

May 24, 1917. Obs. 876. 8 p.m. Reaction time: left forearm, 17 seconds; right forearm, 14 seconds; left face, 10 seconds; right face, 10 seconds. Convulsions next morning at 8 o'clock.

May 25, 1917. Obs. 880. 8 p.m. Reaction time: left forearm, 14 seconds; right forearm, 16 seconds; left face, 9 seconds; right face, 9 seconds. Convulsions at 7 o'clock the next morning.

June 8, 1917. Obs. 913. 7.30 p.m. Reaction time: left forearm, 15 seconds; right forearm, 15 seconds; left face, 11 seconds; right face, 10 seconds. Convulsions at 5 and 9 o'clock the next morning.

June 15, 1917. Obs. 931. 8 p.m. Reaction time: left forearm, 13 seconds; right forearm, 8 seconds; left face, 11 seconds; right face, 10 seconds. Convulsions next morning at 5.30 o'clock.

June 23, 1917. Obs. 948. 8 p.m. Reaction time: left forearm, 13 seconds; right forearm, 8 seconds; left face, 9 seconds; right face, 11 seconds. During the night patient had two attacks of convulsions.

June 28, 1917. Obs. 964. 8.30 p.m. Reaction time: left forearm, 11 seconds; right forearm, 11 seconds; left face, 11 seconds; right face, 9 seconds. Convulsions at 3.30 and 5.45 o'clock in the morning.

July 9, 1917. Obs. 995. 8 p.m. Reaction time: left forearm, 11 seconds; right forearm, 12 seconds; left face, 9 seconds; right face, 10 seconds. Convulsions during the night at 1 and 3.30 o'clock.

Oct. 27, 1917. Obs. 1359. 6.40 p.m. Reaction time: left forearm, 10½ seconds; right forearm, 12 seconds; left face, 11 seconds; right face, 12½ seconds. Two attacks of convulsions during the night.

Nov. 9, 1917. Obs. 1398. 5.30 p.m. Reaction time: left forearm, 7¼ seconds; right forearm, 8½ seconds; left face, 12 seconds;

right face,  $12\frac{1}{2}$  seconds. Convulsions at 5.30 o'clock the next morning.

The diseased condition of the sympathetic neurones, evidenced by the vasoconstriction spots heretofore described, is further shown by the abnormal reaction times of the vasoconstriction reflex, many examples of which already have been given in this essay. A demonstration of another abnormality of the reaction times follows. It has been mentioned that, in the normal individual, the vasoconstriction reflex to stroking the skin of the forearm is quicker to appear than that which follows stroking the face. In chronic idiopathic epilepsy the reverse is frequently noted, *i.e.*, the reaction time of the face is less than that of the forearm. A glance over the observations in Case 1, given above, shows this abnormality. The finding is confirmed by the following records of single observations made in fifty-five other cases of this disease.

CASE 2. Obs. 1508. Reaction time: left forearm, 12 seconds; right forearm, 15 seconds; left face, 11 seconds; right face, 13 seconds.

CASE 4. Obs. 1504. Reaction time: left forearm, 12 seconds; right forearm, 18 seconds; left face, 10 seconds; right face, 8 seconds.

CASE 6. Obs. 1522. Reaction time: left forearm, 12 seconds; right forearm, 12 seconds; left face, 10 seconds; right face, 11 seconds.

CASE 9. Obs. 1532. Reaction time: left forearm, 15 seconds; right forearm, 12 seconds; left face, 10 seconds; right face, 11 seconds.

CASE 11. Obs. 1540. Reaction time: left forearm, 16 seconds; right forearm, 8 seconds; left face, 10 seconds; right face, 13 seconds.

CASE 12. Obs. 1544. Reaction time: left forearm, 13 seconds; right forearm, 16 seconds; left face, 10 seconds; right face, 14 seconds.

CASE 14. Obs. 1551. Reaction time: left forearm, 19 seconds; right forearm, 15 seconds; left face, 10 seconds, patchy; right face, 7 seconds, patchy.

CASE 15. Obs. 1555. Reaction time: left forearm,  $12\frac{1}{2}$  seconds; right forearm, 10 seconds; left face, 10 seconds; right face, 6 seconds.

CASE 16. Obs. 1557. Reaction time: left forearm,  $8\frac{1}{4}$  seconds; right forearm, 11 seconds; left face, 10 seconds; right face, 8 seconds.

CASE 17. Obs. 1562. Reaction time: left forearm, 10 seconds; right forearm, 9 seconds; left face, 9 seconds; right face, 12 seconds.

CASE 18. Obs. 1566. Reaction time: left forearm, 10 seconds; right forearm, 7 seconds; left face, 10 seconds, patchy; right face, 17 seconds.

CASE 19. Obs. 1570. Reaction time: left forearm, 16 seconds; right forearm, 7 seconds; left face, 11 seconds, patchy; right face, 6 seconds.

CASE 20. Obs. 1574. Reaction time: left forearm, 9 seconds; right forearm, 13 seconds; left face, 10 seconds; right face, 11 seconds, patchy.

CASE 21. Obs. 1577. Reaction time: left forearm, 9 seconds; right forearm, 13 seconds; left face, 10 seconds; right face, 12 seconds.

CASE 22. Obs. 1579. Reaction time: left forearm, 21 seconds; right forearm, 15 seconds; left face, 8 seconds, patchy.

CASE 23. Obs. 1582. Reaction time: left forearm,  $8\frac{1}{2}$  seconds; right forearm, 13 seconds; left face, 7 seconds, patchy; right face, 7 seconds.

CASE 24. Obs. 1585. Reaction time: left forearm, 11 seconds; right forearm, 9 seconds; left face, 10 seconds, patchy; right face, 11 seconds.

CASE 25. Obs. 1589. Reaction time: left forearm, 12 seconds; right forearm, 15 seconds; left face, 11 seconds; right face, 15 seconds, patchy.

CASE 26. Obs. 1593. Reaction time: left forearm, 12 seconds; right forearm, 9 seconds; left face, 7 seconds, patchy; right face, 10 seconds.

CASE 29. Obs. 1603. Reaction time: left forearm, 12 seconds; right forearm, 9 seconds; left face, 8 seconds; right face, 10 seconds.

CASE 30. Obs. 1607. Reaction time: left forearm, 15 seconds; right forearm, 15 seconds; left face, 8 seconds, patchy; right face, 12 seconds.

CASE 31. Obs. 1610. Reaction time: left forearm, 16 seconds; right forearm, 17 seconds; left face, 6 seconds; right face, 13 seconds, patchy.

CASE 32. Obs. 1612. Reaction time: left forearm, 11 seconds; right forearm, 8 seconds; left face, 10 seconds; right face, 9 seconds.

CASE 33. Obs. 1615. Reaction time: left forearm, 15 seconds; right forearm, 25 seconds;

left face, 14 seconds, patchy; right face,  $9\frac{1}{2}$  seconds, patchy.

CASE 34. Obs. 1618. Reaction time: left forearm, 10 seconds; right forearm, 12 seconds; left face, 10 seconds; right face, 11 seconds, patchy.

CASE 36. Obs. 1623. Reaction time: left forearm, 19 seconds; right forearm,  $13\frac{1}{2}$  seconds; left face,  $8\frac{1}{2}$  seconds, patchy; right face 10 seconds, patchy.

CASE 37. Obs. 1626. Reaction time: left forearm, 15 seconds; right forearm, 15 seconds; left face, 15 seconds; right face, 16 seconds, patchy.

CASE 39. Obs. 1631. Reaction time: left forearm, 15 seconds; right forearm, 7 seconds; left face, 14 seconds; right face, 9 seconds.

CASE 40. Obs. 1633. Reaction time: left forearm, 13 seconds; right forearm, 10 seconds; left face, 20 seconds; right face, 15 seconds, patchy.

CASE 41. Obs. 1637. Reaction time: left forearm, 12 seconds; right forearm, 12 seconds; left face, 19 seconds, patchy; right face, 15 seconds, patchy.

CASE 43. Obs. 1642. Reaction time: left forearm, 15 seconds; right forearm, 20 seconds; left face, 20 seconds, patchy; right face, 15 seconds, patchy.

CASE 45. Obs. 1646. Reaction time: left forearm, 12 seconds; right forearm, 9 seconds; left face, 13 seconds, patchy; right face, 15 seconds, patchy.

CASE 46. Obs. 1649. Reaction time: left forearm, 13 seconds; right forearm, 11 seconds; left face, 13 seconds; right face, 17 seconds, patchy.

CASE 47. Obs. 1651. Reaction time: left forearm, 13 seconds; right forearm, 15 seconds; left face, 13 seconds; right face, 11 seconds.

CASE 49. Obs. 1656. Reaction time: left forearm, 15 seconds; right forearm, 15 seconds; left face, 10 seconds; right face, 11 seconds.

CASE 50. Obs. 1659. Reaction time: left forearm, 15 seconds; right forearm, 10 seconds; left face, 10 seconds; right face, 14 seconds.

CASE 51. Obs. 1660. Reaction time: left forearm, 13 seconds; right forearm, 7 seconds; left face, 10 seconds; right face, 12 seconds, patchy.

CASE 52. Obs. 1667. Reaction time: left forearm, 16 seconds; right forearm, 12 seconds; left face, 10 seconds; right face, 9 seconds.

CASE 53. Obs. 1669. Reaction time: left forearm, 18 seconds; right forearm, 9 seconds; left face, 8 seconds; right face, 10 seconds.

CASE 54. Obs. 1672. Reaction time: left forearm, 10 seconds; right forearm, 16 seconds; left face, 12 seconds; right face, 11 seconds.

CASE 56. Obs. 1678. Reaction time: left forearm, 20 seconds, patchy; right forearm, 15 seconds; left face, 13 seconds, patchy; right face, 12 seconds.

Another abnormality in the vasoconstriction reaction to stroking, sometimes observed in chronic idiopathic epilepsy, is this: the white streak due to reflex vasoconstriction has not the evenness of the normal reaction,—parts of the streak are lacking; it is patchy in appearance. This defective vasoconstriction reaction, termed "patchy," was found present in twenty-three out of forty-two cases of this disease, as the reaction tests recorded above show.

Other abnormalities in the vasoconstriction reflex have been observed; not infrequently is seen a widespread area of pronounced vasoconstriction, in response to the testing stroke, in place of the ordinary white streak.

Very frequently has been observed a difference in the reaction times taken simultaneously in different parts of the same forearm. Normally, the reaction times for the forearm, stroked near the elbow, in the middle, and near the wrist, are practically the same, and the three resulting streaks are quite similar. In epilepsy the reaction times in these different locations, tested simultaneously on the same forearm, as a rule, vary, and frequently one of the stroked areas responds more quickly, or with a more pronounced white streak than the others. (In making this and all other vasomotor reaction tests, the writer uses a little instrument devised for the purpose, which ensures the application of the same stimulus always,—the stimulus caused by a pressure of two and a half ounces.)

Having shown the diseased condition of sympathetic neurones, manifested by the varied abnormalities described in the vasoconstriction reflex and by the vasoconstriction spots, observations upon some phenomena connected with the latter appear worthy of consideration. During this research, the discovery was made that pigment spots are invariably associated with chronic vasoconstriction spots, that is, where such vasoconstriction spots are found, not far away pigment in the skin is also found. In the photogravures accompanying this essay these pigment spots appear with ink-like blackness. On the skin, pigment spots appear in various

tints of brown, and are not at all as impressive as they appear in these pictures. Pigment spots have served a very useful purpose in the study of the vasoconstriction spots, for, being permanent, they served as landmarks for the location of the more elusive vasoconstriction spots. A sketch was made of the surface upon which vasoconstriction spots had been found, and the location of them relative to the pigment spots was indicated upon the sketch. Using this sketch as a map, further inspection of the surface a week or two after revealed the chronicity, change of location, etc., of the vasoconstriction spots that were under observation.

(To be continued.)

### Society Report.

#### THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN ORTHOPEDIC ASSO- CIATION.

ARMY MEDICAL SCHOOL, WASHINGTON, D.C.,  
APRIL 22-23, 1918.

(Continued from page 783.)

#### DISCUSSION.

MAJOR W. C. PETERS, M.R.C., said he had not had experience with men returning from the war. He had supervision of camps in the Middle West, and he wished to speak of fundamental principles involved. Major Hornsby had said that he did not consider this a time for the rehabilitation of the defective individual. Still, it was found that many cardiac cases could be treated by suitable exercise and many tuberculous cases could be made more fit. Even granting that operation was undesirable, many men could be made fit for the line, many more for limited service, and, thirdly, there was the important point of equal justice. It was not fair that one boy should give up his position to go to France and get shot, while the other boy could stay with his family and friends and keep his position just because he had flat feet. In the Middle West intensive training was being used more than operative methods, and the end justified the efforts.

MAJOR EMIL GEIST, M.R.C., said he was not a camp orthopedist; he was connected with the

General Hospital, and these problems were rather different. He had watched the work of Major Corbusier, and it seemed to him that if one eliminated men from the Army and S.C.D'd them because they had flat feet they were going to waste a lot of good men, who at least were fit for selected service. The last order of the Surgeon-General was that men with flat feet should not be S.C.D'd. This was the most sensible order yet issued.

CAPTAIN MARSHALL, M.R.C., said that there were several very commendable features in this work of Captain Rich. In experience gathered as camp orthopedist at Camp Taylor he felt that many difficulties could be overcome by co-operation with hospital management. It was a big mistake to put a premium on disability. Many a malingerer would go from one ward to another and be seen by different consultants. A rank malingerer would thus pass his time surrounded by all the comforts of the Red Cross, and it was impossible to play the detective continually on these men. This occurred continually, and it was only by segregating these men that the plan could be worked out. Simulation of ankylosis of the knee was a favorite plan, and these men would put in several months in the hospital. This plan, advocated by Captain Rich, was by no means a pleasure cure, and was highly commendable in these malingering cases.

CAPTAIN TRUEHART, M.R.C., of Camp Cody, said he had seen a camp suffering from psychic flat foot. The cure was made extremely strenuous and it entirely eliminated the psychic side. The real flat feet were left. The strenuous training was then let up and it was found that many of these men would never be really fit for military duty. Many of them made excellent bakers, but they could never march. Old empyema cases were put under a course of exercises to prevent scolioses, which often developed after empyema. In this way one could clean out four or five hundred men from the hospital, and leave only 50 or 60.

CAPTAIN WHITBECK, M.R.C., said that he believed that his provisional régime was of the utmost importance. In the beginning of the war it was customary to reject all cases of feet which did not come up to a high standard. When the men enlisted they were rejected for foot conditions which did not come up to the



**Regular Army standards.** In the National Army there were many men who had been rejected for the Regular Army because they had flat feet. It would be found impossible to preserve the standard of perfect feet. Men were also found to fall out through disability or malingering. A number of these cases could be put in shape for military service. The second draft had picked up a lot of men who were passed by on the first draft, and eight months had thus been lost, therefore it was of the utmost importance that good judgment should be used. Forty-eight hours were wasted in going through the hospital routine, whereas if the men were examined in camp and referred to the casual detachment, the problem would be solved. The class could be placed under supervision of an orthopedic man, and many cases could be made fit by graduated exercise. This would relieve the congestion in the wards and make room for the really sick cases. Cases operated on for hernia and cases with sub-acute synovitis could get a chance to get into shape before being put in line duty.

**DR. S. TWINCH**, of Newark, said he would like to ask the members for some instruction in the examination of foot cases. The ideas were not uniform on the subject. One man rejects a foot that can't go into an ordinary shoe. Dr. Twinch said that many cases besides this were not fit, and he rejected them, irrespective of the orders.

**CAPTAIN TEST, M.R.C.**, of Camp Dodge, said that he could say a word in reference to the use of plaster. It would make no difference to the psychic foot; where the foot was really sensitive considerable relief could be gained by immobilization in plaster. Flat feet were of two kinds, the static flat foot, and the arthritic flat foot with history of rheumatism. There was little to do for the latter kind; the x-ray shows lifting of the edges of the tarsal bones. The static flat foot with stretched ligaments could be put up in a plaster for four weeks to allow of subsidence of inflammation, and then it could be strengthened by exercise. Probably there were many perfectly good flat feet. There was strain observed with high arch also. There was ethnic significance in this. The Scandinavian showed a thin foot with a high arch. This type of foot did not stand marching well. Putting pads under the metatarsal heads helped somewhat, and increasing the size of the shoes

helped more. It had been found of help in teaching regimental surgeons about feet, to have two lantern slides made, showing a normal and an abnormal foot. It was important to be able to judge whether a man was malingering or not.

**CAPTAIN E. R. RICH**, in conclusion, said that he thought that any case bad enough to be put in plaster of Paris ought to be S.C.D'd. It was found difficult to get the Casual Detachment started in camps. The orthopedic man had to get in touch with the line officer, and sometimes it was necessary to telegraph to the Surgeon-General's office. The organization was a very essential one.

#### ORGANIZATION OF DIVISION OF ORTHOPEDIC SURGERY IN U. S. ARMY WITH EXPEDITIONARY FORCES.

**MAJOR JOEL E. GOLDTHWAIT** sent this paper. Briefly stated, the points covered were as follows: The chief work of the orthopedic surgeon is the salvage of men for duty; this consists of two parts—(a) proper physical training, (b) restoration of wounded. Under the first heading falls the general postural care, inspection of shoes and clothing, and special supervision of training. The second part involves the treatment or assistance in treatment of cases in which the bones and joints are injured, or in which the muscles, tendons or ligaments which are involved in the control of these parts are damaged, including proper supervision of splints, and transportation.

#### ORTHOPEDIC SURGERY IN THE ADVANCE ZONE.

**MAJOR KENDALL EMERSON, M.R.C., A.E.F.**, gave his paper. In time of stress, as at the present, perfect health was the most desirable asset; correct posture was essential in order to have the least possible interference with the functions of the abdominal viscera. It was essential that principles of hygiene should be understood by men and officers. In organizing an orthopedic unit the work was under a line officer and four orthopedic surgeons. It included two parts. First: Under proper physical training men were trained to become fit for full combat duty; 80% of the men were enabled to reach this standard. The second part of the work dealt with the restoration of the wounded and included the splints used for their transportation, and their subse-



quent hospital treatment and re-education. It was felt that the orthopedic surgeon had a special duty to perform in the advanced areas of warfare. Attention had to be given to the soldier when he fell, and the stages from the trenches to the hospital train were under special care. The ambulance service had no facilities for operation, owing to air raids, and the first opportunity for operating was the evacuation hospital. A stationary hospital with a permanent staff, five miles back from the line of battle, and equipped with 500-1000 beds, could cover a great deal of active work. Different small staff units could be detached from this and be detailed to points where the staff was overworked. Such small teams were mobile and could be added to or taken away from a unit. They should be equipped to do all kinds of surgery. A permanent orthopedic unit with detachable teams could be created under the supervision of a first-class orthopedic surgeon. A general surgeon could act as assistant and anesthetist. The orthopedic surgeon should be broad enough in spirit and ability to assist the general surgeon, when necessary, in chest and abdominal cases. In fractures and joint injuries the trained judgment of the orthopedic man was necessary in the first instance. The details of the kind of splint required and the problems of immobilization should be carried out under his supervision, though orderlies could be trained to do wonderful work, under proper direction. In forming her medical and surgical units the greatest care as to organization and detail was necessary. America must leave no stone unturned to offer the best surgical service to help the boys who were offering the supreme service of sacrifice.

#### DEMONSTRATION OF IMPORTANT SPLINTS APPLIED.

CAPTAIN W. J. TAYLOR, M.R.C., A.E.F. It was stated that the splints used by the British had been made haphazard without efforts at standardization. An attempt had been made to adapt them to men of any size, by various contrivances. Standardization would simplify procedures and aid transportation facilities. The splint should be quickly applied, before the man has a chance to move and to make a compound fracture. Appliances for the upper limb were shown—the elbow metal splint, the triangular bandage, the Thomas traction arm band. It was shown that the more simple the apparatus was, the better it was worked at the

battle line. The forefoot splint and the Jones long leg splint were shown. In injuries of the tibia it was found of more comfort to the patient to have a side splint and a posterior splint together in use. A pad was placed under the Achilles tendon to support the foot. An improvised sling for the leg could be made by splitting the trouser on the upper side, turning back the flaps and pinning them round the bars of the stretcher, thus allowing the clothing to form a sling on which the injured limb rested.

#### THE CARREL-DAKIN TREATMENT AT OXFORD.

CAPTAIN JOHN DUNLOP, M.R.C., A.E.F., gave this paper. Old chronic suppurating war wounds, he stated, had been subjected to many treatments. Cases were selected for the Carrel-Dakin treatment which had failed to recover under other methods,—B.I.P.P., eusol, hypertonic salt and flavine. The cases were chiefly open fractures of the upper and lower limbs, a few flesh wounds, septic bone grafts and exacerbations of old septic scars. The cases were operated on afresh and Carrel tubes inserted. Great care was exercised to insure aseptic dressings. Behavior of wounds resembled that of fresh cases under similar treatment. The usual difficulties were encountered with the apparatus. No secondary sutures were attempted. Conclusions indicate that the method was successful,—wounds healed more quickly than is usually expected, dressings were painless and the general improvement in the patients' conditions was very marked. It was apparent that the infection was controlled from the beginning. At operation a thorough exploration of the wound area was made, and the first dressings were done under complete anesthesia.

#### HISTORY OF WOUND TREATMENT IN THREE AND A HALF YEARS OF WAR.

MAJOR G. W. HARLEY gave this paper. He said the changes that were now taking place were revolutionary. More progress had been made in the past year than any since the war began. The difference between civil and military practice was not so well appreciated at first. Beneath an innocent-looking wound much traumatized tissue was often found. Total excision of all foreign bodies was essential. Effectual bacteriological control could be best effected by the Dakin hypochlorite solution combined with early operation. War op-

erations appeared more like butchery than surgery. One surgeon had said it looked like the pathologists' work at a post mortem. To prevent osteomyelitis, the operation should be performed within 18 hours. It was said that in France alone there occurred 170,000 cases of osteomyelitis. This was the type of case which the orthopedic surgeon would have to treat.

#### THE TREATMENT OF CHRONIC OSTEOMYELITIS DUE TO GUNSHOT INJURIES.

This paper was given by CAPTAIN C. F. EIKENBARY, M.R.C., A.E.F. It was stated that sequestrae might be left and thus persistent sinuses be formed which would remain for years, and finally result in amputation. From a five months' experience at Bellahouston Hospital in Glasgow the author concluded that palliative operations in chronic osteomyelitis are of no avail. Treatment followed the lines of making a radical incision, including as much of the sinus as possible. Sequestrae were removed, together with much healthy bone, an inch above and below the diseased area. The chisel was slanted to leave a smooth-edged, shallow trough of healthy bone. This was packed with dry gauze, the skin held by one suture at either end. The aim of the operation in such cases is to: (1) get rid of all necrotic bone; (2) avoid leaving any cavity at all; (3) avoid leaving spicules, rough areas, etc. Post-operative improvement was successful, healing taking place within four weeks.

#### NOTES ON EXCISIONS OF SEPTIC JOINTS.

MAJOR ROBERT B. OSGOOD sent this paper. He stated that the use of the ankylosed joint depended mainly upon the angle of ankylosis. Two requisites in treatment were that the position of immobilization should be slightly exaggerated, and, second, that adequate drainage be provided. There should be some apparatus to prevent the patient lying on his wound. The removal of loose fragments was not advised as these might form a solid union. Anatomical considerations played a part in regard to the ankylosed joint. In some cases fair stability with motion could be obtained. In others flail joint occurred. Ankylosis was most favorable in shoulder, hip, knee and ankle. The one exception was the elbow, which was better flail than stiff, because it was not a weight-bearing joint. Fixation of joints was considered, and an angle of 70 degrees was stated as best for the

shoulder; 110 for the elbow (if both elbows, one 110, the other 70 degrees). Jones favored putting the hip and the knee in extension, but other surgeons used slight flexion. The wrist was put in dorsal flexion; the ankle at right angles. The results of excision of joints were interesting. The excision of the knee, unless in the presence of sepsis, was encouraging; the excision of the ankle in children, successful; not so in adults. The writer considered merely the excision of joints for control of sepsis, not primary excision for other varieties of joint disease.

#### PRIMARY AND DELAYED PRIMARY SUTURE IN THE TREATMENT OF WAR FRACTURES.

This paper was presented by MAJOR WILLIAM S. BAER, M.R.C., A.E.F. American surgeons, he said, had arrived on the scene when the principles of general war surgery had been established. Since August, 1914, wonderful strides had been taken from the old painful, prolonged treatments to the present methods with the almost complete restoration of function. These hard and costly lessons had been learned by the Allies. The principles of war surgery so far established are: (1) all wounds are to be considered infected; (2) it is necessary to remove all projectiles, clothing and devitalized tissue, if possible, before the 12th hour after the injury; (3) when removed within this period such wounds can be considered aseptic in character and a primary suture made, thus converting compound fractures into simple fractures. In skillful hands primary suture could be performed (before the 12th hour) in 80 to 95% of the cases. When primary suture was not found possible, the so-called secondary suture, in which the wounds are closed on the second, third or fourth day, would be found successful in 80 to 87% of the cases.

#### THE PATHOLOGY OF THE PERIPHERAL NERVES IN GUNSHOT WOUNDS.

This was presented by CAPTAIN SYDNEY M. CONE, M.R.C., A.E.F. The report included observations upon two hundred cases of nerve injuries, both severed nerves and those involved in scar tissue. It dealt with the pathology of degenerating nerves, and stated that proliferation takes place at both proximal and distal ends, and that bulbous terminations of severed nerves are composed chiefly of actively growing

nerve tendrils and comparatively little inactive tissue.

#### ORTHOPEDIC TREATMENT OF NERVE LESIONS.

This paper was presented by MAJOR WILLIAM G. ERVING, M.R.C. The problems of this subject, he said, were numerous and complicated. Each step was important, and the treatment might be divided into 3 groups: (a) supporting and protecting, (b) operative, (c) non-operative. In connection with the first, it was found necessary to have splints to overcome the defects produced by sensory nerve lesions, such as wrist-drop. To prevent stretching of muscles a light papiermaché model was used, and various other appliances were used to prevent contractions or malpositions of hand or foot. The manipulation of adjacent joints was necessary to prevent deformity. The operative treatment consisted of: (1) freeing muscles and tendons from scar tissue, (2) freeing nerves from scar tissue, (3) suture of divided nerves, (4) tendon transplantation, (5) arthrodesis. Non-operative treatment consisted of faradic stimulation, diathermy, hydrotherapy, massage, passive and active exercises, workshop training and mechanotherapy. The mind had to be trained to help to train the muscles. The proper sequence and coordination of these methods required the supervision of the patient by one surgeon throughout, who would take into consideration all the problems involved, and give to each step of the treatment its proper place in the general scheme.

#### DISCUSSION.

DR. TRUSLOW, Brooklyn, said he was interested in noticing in the introductory pages of Sir Robert Jones's "Surgery" that he had gained advantage in war orthopedic surgery by his previous experience in the treatment of paralytic tremors in children and other persons. In hearing the papers read he could see that they might find their experience in paralyses useful in the lessons they would have to learn. One could see that the methods of therapy would be applicable to war surgery nerve lesions.

At this time exhibition was made of a complete dissection of a human nervous system, from a man 5 feet, 7 inches, and weighing 240 pounds. Eighteen months' preservation in formalin and other preservatives had reduced

it to about 2 feet in height. The dissection was made by Walter H. Wright, a student, who had spent two summers in the work. Every tissue had been sacrificed in the figure except the nervous tissue, and it was interesting to notice that the 7th nerve showed an anastomosis with the infraorbicular.

#### OPERATIVE TECHNIC IN CONTRACTURE OF THE HAND.

This was a lantern demonstration given by MAJOR ALLEN B. KANAVEL, M.R.C. (by invitation). One picture showed destruction of tendon with involvement of nerve and adhesions. In the treatment of this case there were difficulties. The lumbricoid muscles were bound down in scar tissue and had to be dissected without injury to the nerve supply. Owing to impairment of blood supply to the synovial sheath in injury, the sheath was apt to fill with fluid and pus and the nerve became damaged and lost its vitality. In injuries of the median nerve the annular ligament was an important structure. Injury to the ligament caused necrosis of the nerve. Increase of anemia in the parts hastened nerve destruction. In studying the relation of the nerves to the wrist joint, where the os magnum, the ensiform and the trapezium are destroyed, the removal of the distal row of bones is not sufficient. Care should be taken not to mistake the fibers of median nerve for the tendon. Cases had been found where the nerve ends had been sutured to the tendon by mistake. Great help could be obtained by following the nerve fibrils with a magnifying glass. A picture of the hand of a pianist was shown, in which restoration of function was complete after injury. Continuity of the nerve was restored, the nerve wrapped with a pad of fat, and the tendon sutured with silk.

#### DISCUSSION.

CAPTAIN LANGWORTHY, M.R.C., said that immobilization of wounds of the forearm and hand, and neglect of exercise, prevented men returning to duty on account of stiff hand. Gradual flexion would be found better than forced flexion under anesthesia. The use of a plaster bandage, 5 ins. wide and 5 yds. long, holding the wrist in dorsal flexion, would give absolute control of the joint and full extension of fingers, while only two weeks was required for treatment.

RE-EDUCATION IN THE FUNCTIONAL DISABILITIES  
OF ACTUAL WAR SERVICE.

CAPTAIN WILLIAM W. PLUMMER, M.R.C., A.E.F., presented this paper. This was the result of experience in the 2nd National General Hospital, under Dr. W. C. Morton of Leeds, England. Cases were found to differ greatly in degree of disability, from slight incoordination to malposition or deformity. Fixed flexion of hands—equino varus—was very common. The disability might or might not be related to the wound, and the mental equipment of the patient did not always bear upon the case. Before re-education the history and conditions are carefully analyzed. The patient is convinced by demonstration that the wound is not responsible for the symptoms. The degree of functional disability is noted. Treatment was made to include passive and active exercise, faradism, voluntary efforts on the part of the patient. Individual treatment of the cases was insisted upon and encouragement given. The patient was allowed to feel his troubles were real and that no stigma was attached. The patients were not segregated and the general tone was good and spirits high. The men were never treated as malingerers. It was found that the true malingerer would always overdo the part. It was impossible to re-educate such a case. The re-education was given in private until the patient acquired confidence, and the idea of what his muscles should do was always held before him. Hypnotism was never used. Marked improvement was shown in apparently hopeless cases. In the 300 surgical beds only one malingerer was detected in four months. Naturally the personnel of such a department requires very careful selection. A civilian practitioner, rather than an officer in uniform, was found the best director. The recovered cases were never fit for war duties and should be detailed to other employment.

## A SYSTEM OF ORTHOPEDIC INSTRUCTION.

This paper was presented by Major R. W. Lovett, M.R.C. Experience had shown that in the intensive training of military surgeons that teaching, to be effective, must be more fundamental. The work was seen from a new angle, and consisted of graduate instruction, pure and simple. Mistakes of the surgeon would not be shown on examination paper, but failures would be demonstrated on the soldiers in camp, therefore the training of the camp

orthopedic surgeon must be fundamentally thorough. It was of no use to talk about a tuberculous joint to a man who did not understand what a joint was. The study of the normal joint must be undertaken before the study of joint disorder. The vulnerability of the joint and its reactions to trauma and irritants should be taught. All subjects allied to orthopedic surgery should be covered, and the instruction should be as largely clinical as possible. Points of instruction should cover: (1) diseases of the neuromuscular mechanism; (2) passage of the nervous impulse from the cortex down; (3) lesions in the synapse, in the brain cortex, after leaving the cortex; (4) muscular lesions and disturbances of motor function explained; (5) explanation of lesions in weakened muscles, and the relation of flexors and extensors (the former being stronger than the latter and more apt to cause deformity) being demonstrated; inhibition due to cerebral lesions is analyzed; (6) peripheral nerve lesions studied; thus covering all points of the neuromuscular mechanism. The second part of the course would deal with static deformities, and the causes of muscular depreciation, foot strain, scolioses, etc., would be considered. This study would include mechanical peculiarities of the different joints and results of toxic invasion of joints. Here would be considered the indications for operation on general pathological and functional grounds. Tuberculosis, arthritis and syphilis would be considered in this connection. Growth and function of bones and bone lesions would next be dealt with. The last part of the course should cover the question of apparatus and artificial appliance; the reasons for application of apparatus and the suitability of plaster, iron or leather being shown. Under this subject would be included: (1) fixation, (2) traction, (3) support, (4) correction of deformities. Students would work out for themselves the mechanical need of the apparatus. In this connection, rickets, as a cause of bone disturbance, would be dealt with, and the student taught that the ossification must be brought to normal by diet, hygiene, etc., in addition to treatment by supporting apparatus. In conclusion, Dr. Lovett said that the students responded extremely well to such an intensive course as outlined. The whole aim of the work was to use education in its real meaning, that is, "drawing out" instead of, as was so frequently done, "putting in."



## DISCUSSION.

DR. JOHN PORTER, of Chicago, said he would like to attend a course of instruction by Major Lovett; he spoke feelingly because he was a teacher himself, and he was afraid it was almost an impossibility to compress into a few months anything like the amount of work that Major Lovett suggested.

## THE CAMP GREENLEAF SCHOOL OF CLINICAL ORTHOPEDIC SURGERY.

This presentation was made by MAJOR EMIL S. GEIST, M.R.C. At present it was stated that 1000 doctors were in course of training at Camp Greenleaf. A course of four weeks is spent in intensive training, in subjects necessary for every medical military man. This includes drill, physical training, military hygiene, and orthopedic surgery. The chief points aimed at are: (1) making the army fit for service, (2) keeping it fit. The camp is near a large hospital where clinical material is easily accessible and the patients are soldiers. The chief difficulty was found in trying to get the civilian to adopt the military viewpoint. Osler had said that "if a man understands typhoid well he has the foundation for internal medicine," and it could also be said that if a man understands a tuberculous joint he has the foundation for orthopedic surgery. The main point was to avoid deformity, and the treatment of the tuberculous joint lent itself to this study. An outline of the day's studies at the camp was given: drill, 7.30 to 9 a.m.; the men begin school at nine. Courses include: anatomy—neurological and pathological, x-ray diagnosis, nerve surgery, history-taking and recording; a special course on foot ailments, as applied to the soldier, is given. The importance of the latter could not be overestimated. There was also a literature course, and the students were encouraged to abstract and discuss the best available literature on military orthopedic surgery. One important item of the training was the making of models of braces and apparatus, the simpler the better, and a great deal was done with simple wire models which the graduate was able to carry about with him so as to be ready to apply the instruction in the first emergency.

## THE MOVING PICTURE AS A METHOD OF TEACHING, WITH SPECIAL REFERENCE TO POST-GRADUATE WORK.

MAJOR R. T. TAYLOR gave this presentation. The great need of illustration in post-grad-

uate instruction having been felt, the Surgeon-General's Office had undertaken to equip a Medical Art Department of the Army Medical Museum. This would furnish a post-graduate research library of the highest value, and the work of the Government should be enthusiastically supported by the profession in order to make this work a treasury for all specialties. The Government had to meet great demands, coming from all the camps, for moving picture illustration. Colonel Owen was at the head of this work, and he had undertaken to supply the illustration of such subjects as war neuroses, tendon and muscular transplantation, intestinal anastomoses, application of deep sutures, etc. These subjects were brought home to the student and fixed in the memory better by illustration than by any other means. In combination with suitable lectures, this teaching gave a higher average for the students than any other method. The advantages of the film were that they could not be lost or broken, as was the case with slides. The techniques of different surgeons in this and other countries could be compared. In order to facilitate the work of the Surgeon-General's Office, a guarantee of safe return of films should be made and also, in order to prevent commercial monopoly, physicians having films arranged, should stipulate with commercial firms that a copy be placed on file at the Surgeon-General's Office, for use in the Army Medical Schools. Many of these films took six months to prepare, on account of the necessity of careful attention to detail and technical points, and it was up to physicians to see that this work was not lost to the profession by commercial greed. Coöperation with the Surgeon-General was essential in order that the full benefit of this work might result.

## THE PROBLEM OF THE CHRONIC DISABILITIES OF THE SOLDIER.

This paper was given by CAPTAIN FRED J. FASSETT, M.R.C., A.E.F. It was stated that the chief hindrance to successful orthopedic surgery was found in sepsis. The time for treatment of compound fractures was, therefore, before infection had set in, if not, modern orthopedic methods could do nothing in the way of restoration of function. In the military hospital the surgeon had to encounter a certain attitude of resistance among the patients. The men wanted nothing better than to be let alone.



This inertia was a psychic factor difficult to explain, but necessary to combat. It was the reaction after two or three years of abnormal trench life, and the wounded man had lost connection with the military side and had not yet reestablished it with civilian life and duties. Mental readjustment would take time, and the men do little to help themselves. The inspiration must come from the doctors and nurses. Prolonged hospitalization was found to have a depressing moral effect, and a man unfit to return to military life should be at once put in relation with the outside world, and helped to find his new industrial station. An Out-Patient Annex Department could bridge over the gap and care for these patients in their new start in life. Without this help at the difficult point of readjustment, the returned soldier was apt to remain a moral as well as a physical cripple.

#### SOME ASPECTS OF THE MILITARY MASSAGE PROBLEM.

This paper was given by MISS MARGUERITE SANDERSON (by invitation). This problem, the author said, was not so much a technical one as it was a question of administration. The types of cases to be treated were largely comparable to injuries in civil life, but the treatment was necessarily more intensive. A knowledge of anatomy was imperative and an individual study of each case was necessary, as the same lesion in two different patients could not always be treated alike. The patient's cure might be said to depend in a great measure on the moral force of the masseur or masseuse. Women of thorough and special training and with education and intelligence were needed for the work. The massage was coincident with re-education, and a knowledge of anatomy, physiology, and medical gymnastics was essential. The support of orthopedic surgeons was necessary to give the proper status to the kind of women needed for the work in the military hospitals. To keep the standard of the work high, the position should be made dignified and responsible, and proper compensation be allotted. This would be brought about by the influence and co-operation of the orthopedic men. At present there was a lack of proper coördination in the physio-therapeutic treatment in all its branches. To obtain the best results, all sides of the treat-

ment should be considered in their relation to the whole, and all the workers should keep true to the vision of the returned soldier as a rehabilitated citizen.

#### ELECTRO- AND HYDROTHERAPY.

This presentation was made by LIEUT.-COL. R. WILSON, R.A.M.C., Ottawa, Canada (by invitation). He said he would devote the time allotted to speaking of experience in England and France. The American Medical Reserve Corps seemed to be groping for information of all kinds which had a practical bearing on military questions. Therefore, though his remarks might be somewhat rambling, he hoped that some of the things they might gather would be helpful. Electro- and hydrotherapy were only two of the many methods used in the cure of wounded and disabled soldiers. It was necessary to ask two questions: (1) What are the conditions calling for physical remedial measures? (2) What remedial measures are best able to achieve the end in view? One must discover if the results justified the money expended on personnel and equipment necessary to give the treatments in the requisite manner to do most good. It was also necessary to consider what modifications a man might make for himself in applying these measures when used in private practice to adapt them to the large number of men who returned and who would not be reclaimed by the army. Colonel Wilson said that he believed in the Socratic method of asking questions and getting the men to answer them for themselves, as the working out of the problem would do more good than having the answers given. In England and France it had been found that the greatest interest attached to the nerve injury. It presented the most puzzling problems and those with which medical men were least acquainted. Next came injury to joint function, most important to the patient himself and second in interest to the orthopedic surgeon. Injuries by large loss of tissue and replacement by scar tissue needed special study, and, lastly, those various neuroses classed as "shell shock," doubtless because they had nothing to do with shells and very little with shock. Perhaps *fatigue neuroses* would be the better term. There were also cases of war nephritis, due purely to exposure, and different from nephritis of infections, known as "trench nephritis." Here one could ask what were the phys-

ical remedial measures to be employed in treatment. Colonel Wilson said that if he had to choose one method to the exclusion of any other, if he had to select one form of treatment and *nothing else*, he would choose treatment by a well-trained masseuse, who understood anatomy and physiological function. In regard to hydrotherapy,—in England there had been installed what were called “*au courant* baths,” that is, those in which the water was kept continually in motion by means of nozzles of compressed air. This was similar to the “whirlpool bath,” in which two nozzles forced the water in opposite directions. In the still bath there was always a layer of cooler water forming next the body, and the whirlpool bath did nothing more than to keep an even temperature round the limb. The addition of compressed air to the bath was supposed to keep up a certain definite massage of the limb by the pressure of air bubbles, but the speaker said he was not convinced that the results claimed justified the extra expense of this apparatus. Where water is scarce, however, it was cheaper than a continual flow of running water. In addition to hydrotherapy, massage was given, and this was thorough and specific in regard to the patient's disability. The treatment by the “*au courant* bath” cut down the time necessary for massage by one half, by relaxation of the muscles and loosening of the lymphatic circulation. When one came to the question of electrotherapy, one was upon debatable ground. There was great dispute among the authorities as to what effect electricity has upon the tissues. The effect was not really known. Lucas had devoted a great deal of time to the question and considerable experimentation. Colonel Wilson said he was inclined to agree with the results of Lucas and to say that the only effect obtained from nerve impulse and muscle response is generation of an electrical current. The amount of heat induced is so infinitesimal as not to be measurable. The nerve impulse travels 123 meters per second, and the electrical current simply equals a volitional impulse, and vice versa. In rabbits it had been found that those allowed to use their limbs regained function more rapidly, therefore the volitional impulse had a certain definite influence on the nerve fibrils. In treatment, Colonel Wilson said it was his custom to give a continuous current from above down for half the time, and then to stimulate the muscle by other means

for half the time. In discussing the matter with Colonel Starr, the latter had said that it did not do harm, and might do good, and Colonel Wilson said he felt that it did good and did not do harm, so that they were both in perfect agreement on the matter. Colonel Wilson said he felt that the contraction of muscle depended upon the number of nerve fibrils supplying the muscle. In cases of partial paralysis, the symptoms were not due to the fact that the whole muscle contracted less, but that parts of the muscle did not contract at all. A common mistake was to suppose that a muscle severed from its nerve would respond to faradic stimulation. This was impossible. The properties of electricity were the same, no matter where obtained, whether 3000 volts or 20,000 volts, whether it goes backwards or forwards, up or down, the important point was the effect upon muscle tissue, the severed muscle tissue could not respond. With the nerve intact, the response would be to a current alternating as little as .008. In using the condenser there was a difference which pole was used. For treatment of a paralyzed muscle, in conjunction with massage, the galvanic current was used. It must be remembered that the weak muscle would not do as much as the strong muscle, and that nothing should be done to jerk suddenly the weak muscle. One must not insult a damaged muscle. The Wappler machine with the interpolated current was to be preferred to the use of the metronome. The electrician could adjust the wiring so that the cathode or the anode could be used, or the two alternating. This could be used for ionization treatment. In the treatment of ill-defined pains in war neurasthenia and neuroses, sodium salicylates could be given at the back of the neck or chlorides of sodium or potassium. With this was used 80 milliamperes of current for half an hour. For reduction of high blood pressure the high frequency current was used. Very often in war neuroses there was high blood pressure with associated kidney condition. Care should be exercised in this treatment, as a very rapid drop might occur with dangerous results. In one patient this had been as much as from 160 to 110. The man was found unconscious. The high frequency current caused diathermy, and its therapeutic effect was due to this occurrence. In advocating all these remedial measures one should not forget the education of the mind in the establishment of volitional power.

Upon the return of volitional power the electrotherapy should be dropped to a minimum. In Canada the use of schools of physiotherapy was found important. The medical man had to be taught first, in order that he might teach the people afterwards. The assistants in physiotherapy were being trained in such a manner that they could not leave the hospitals and claim to be graduates of any branch, and so impose upon the public. Masseuses and masseurs were allowed to do that work only. Certain men were trained to give the electric current only. The bath attendants were not allowed to give massage at all. Those teaching re-education of function did that and nothing else. Thus each assistant was put, as it were, into a water-tight compartment which entirely prevented the letting loose of half-baked practitioners who might do incalculable harm by a half knowledge of the subject. Many men were being put upon the work of devising apparatus, and it was being made impossible for manufacturers to get hold of these ideas and patent them. The Government held the ownership of all such apparatus and the distribution of such to all hospital centers. In conclusion Colonel Wilson said that they received numerous petitions from American physicians to come to Canadian military hospitals to learn; it would be utterly impossible to accept all that applied, and the only way was for applicants to enter as duly accredited delegates from the U. S. Government, in order to avoid being classed among those individuals who wanted to make a sort of Cook's tour of the hospitals for their own purposes. Such government credentials would ensure attention and avoid abuse of privilege.

(To be continued.)

### Book Reviews.

*Blood Transfusion, Hemorrhage and the Anaemias.* By BERTRAM M. BERNHEIM, A.B., M.D., F.A.C.S., Instructor in Clinical Surgery, The Johns Hopkins University; Captain, Medical Officers' Reserve Corps, U. S. A. Philadelphia: J. B. Lippincott Co., 1918.

Owing to Dr. Bernheim's sudden departure for foreign war service, this book has been published without opportunity for the author's final inspection and revision. This is unfortunate, for upon reading the book, one is left with the impression that its 247 pages have been hastily put together. It is written in a rather colloquial

style, and there are numerous rather detailed experiences with personal cases. Theoretical considerations have been purposely eliminated. As stated in the preface, "The book is meant for the man who is engaged in clinical work and desires to know concretely what is being done with transfusion, and how to do it." It serves this purpose fairly well, but is not so concrete and complete as one might expect it to be.

*The Spleen and Anaemia. Experimental and Clinical Studies.* By RICHARD MILLS PEARCE, M.D., Sc.D., Professor of Research Medicine; EDWARD BELL KRUMBHAAR, M.D., Ph.D., Asst. Prof. of Research Medicine; and CHARLES HARRISON FRAZIER, M.D., Sc.D., Prof. of Clinical Surgery; University of Pennsylvania. Philadelphia: J. B. Lippincott Co., 1918.

With the interest that has developed in recent years in regard to splenectomy for various conditions, this volume is to be most definitely welcomed as a valuable contribution. The book is divided into three main parts. The first, by Dr. Pearce, deals with the experimental and metabolic study in animals and the relation of the spleen to blood destruction and regeneration, and to hemolytic jaundice. Metabolic changes in man, before and after splenectomy, are considered also. The second part, by Dr. Krumbhaar, is concerned with clinical studies of the splenomegalies that are especially associated with anemia and not with infections or leukemic states. The third part, by Dr. Frazier, takes up the surgical aspects of splenectomy. Much of the subject-matter of the book represents rewritten articles that have appeared in the last five years by the authors and their associates, especially Drs. J. H. Austin and J. H. Musser, Jr., and O. H. Perry Pepper. One is inclined to feel that there is relatively too much detail given in the first part, that occupies nearly two thirds of the book, especially when compared to the concise and satisfactory, but not wholly complete, observations of the second and third parts. A few errors have been found in the bibliography of 456 references; some references are possibly misquoted, while certain other references might have been added. Some of the 16 illustrations in the book might be rather better, especially that of the reticulated red cells, which is poor. However, one should overlook small defects, as the authors are all now in the service of the Government and undoubtedly had to complete the last details of publication hastily. The book should be found on the shelves of all medical libraries, and is valuable to any one who is interested in blood conditions.

*Treatise on Fractures.* By JOHN B. ROBERTS, A.M., M.D., F.A.C.S., Professor of Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine; Sometime Chair-

man of Fracture Committee of American Surgical Association; Membre de la Société Internationale de Chirurgie; and JAMES A. KELLY, A.M., M.D., Attending Surgeon to St. Joseph's, St. Mary's, and St. Timothy's Hospitals; Associate in Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine. With 909 illustrations, radio-grams, drawings, and photographs. Philadelphia and London: J. B. Lippincott Company.

It is impossible to examine Roberts and Kelly's book on Fractures without comparing it with the book written by Speed, recently reviewed in these columns. Roberts' is the smaller book of the two, both in the number and the size of the pages. Roberts' is even more profusely illustrated, a very large proportion of the illustrations being half-tones of patients, lesions, or x-rays; comparatively few being tracings from plates. We referred to Speed's book as being essentially a Middle West production; Roberts' is just as obviously written from a Philadelphia viewpoint. Stimson of New York, Scudder, as well as Cotton, of Boston, Roberts of Philadelphia, and Speed of Chicago, give us together a series of volumes which accurately reflect the American conception of fractures and their treatment, as it exists east of the Mississippi.

Roberts' book contains the well-digested judgment of personal experience, as well as a summary of the views of others. The opinions expressed are unequivocal; the treatment suggested is definite and certain. It seems to be a book of very real value, both to students and to practitioners; to students because it is authoritative and dogmatic; to practitioners because the sometimes conflicting ideas of others are considered and given due, but not overdue, value. The attitude toward operative treatment is sound and reasonable, the comment upon suture of closed fracture of the patella on page 532 being an excellent example of an admirable viewpoint.

#### *Pathological Lying, Accusation, and Swindling.*

By WILLIAM HEALY, A.B., M.D.; and MARY TENNEY HEALY, B.L. Boston: Little, Brown and Company.

Dr. Healy has had an exceptional opportunity for the study of a great variety of pathological mental conditions because of his connection with the Juvenile Court of Chicago, which makes him one of our foremost authorities upon such subjects. This book is another notable contribution of his to a portion of the field which has occupied him, and it should be widely read and studied by all who come in contact with the problems which continually

arise in connection with sociological work. Instances where the problems of which this book treat, are of the greatest importance to many workers, judges, lawyers, sociologists, and charity workers, no less than to physicians. The importance of this book, too, is increased very much by the fact that comparatively little has been written in English upon this subject, the most important writings upon it being in foreign languages, and scattered in periodicals, many of which are comparatively inaccessible. Dr. Healy defines pathological lying very clearly, and well, in his introductory chapter, as falsification entirely disproportionate to any discernible end in view, engaged in by a person who at the time of observation cannot definitely be declared insane, feeble-minded or epileptic. Such lying rarely, if ever, centers about a single event; although exhibited in very occasional cases for a short time, it manifests itself most frequently by far over a period of years, or even a lifetime. The close relation to pathological lying of the pathological accusations and swindling makes their inclusion in this volume both natural and convenient. It is gratifying to find, too, that the author admits that in much of his experience in the work of the juvenile courts, the lying found is so intimately mixed up with other delinquencies or unfortunate sex experiences that the lying, after all, cannot be regarded as purposeless. As has been well said by one writer on psychopathology, the ignorant do not see the essential facts of pathological mental conditions, the half educated see too much, while only those with great experience and careful training can distinguish the real pathological examples from the misleading ones, and the same balance which the authors of this book show on almost every page, shows that their work is that of the true, trained expert who is fitted by both study and experience to guide others.

The exclusion from pathological lying of the cases in which this is merely an episode in a hysteric, imbecile or case of beginning insanity is justified, and the reasons made clear to the reader. Among the conclusions which are of the greatest interest to the physician, are those that these cases show a strong psychopathological hereditary taint; six cases of nineteen studied showing, for instance, insanity in the direct family, four of these being in a parent, while other forms of taint were also frequent, and in only two instances did reliable data show normal family stock.

If there is a lack in this book, it is only that one cannot help wishing, as the studies of the individual cases are given, that they might have been given much more in detail, though this condensation was undoubtedly necessary from the plan of this book, and the attempt to keep it within a reasonable size; and, considering these limitations, the task has been accomplished with wonderful success.



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### VITAMINE BALANCING.

MUCH light has been thrown upon the nature of rational dietetics and the prevention of certain specific nutritional diseases by the study of vitamins. Not until recently was it very definitely understood not only that it is necessary to ration from the standpoint of the three food elements,—the proteins, the carbohydrates, and the fats,—but that there is an other element of the food that must be considered of equal importance. For want of a better, more descriptive name, this vital food element is called "vitamine." It is quite possible to balance the ration and yet have a food that is, either intrinsically or through the mode of preparation, lacking in vitamins, and which will cause one or other of the specific nutritional diseases, such as beriberi, scorbutus, pellagra, rachitis, or some of the more general evidences of malnutrition. But even the presence of food rich in vitamine is not sufficient to anticipate nutritional disturbances unless the food

is so mixed or balanced that there will be present a number of all the necessary vitamins. The body cannot get along with one vitamine any more than with one food element, no matter how much of it there is. While all food contains some vitamine, some foods are very poor in it, and if they form the chief articles of diet it can be seen that nutritional disturbances are bound to follow. Likewise, even though a food has sufficient vitamine, the latter may be destroyed by preparation or otherwise, and the same result follow as if the food were lacking in vitamine. Food vitamins vary in character, so that one vitamine cannot take the place of another, which may be lacking, by increasing the quantity of the first.

Of the non-food substances found to be rich in vitamine, yeast—brewer's yeast—seems to hold first place. In animals experimented upon by feeding them on food lacking in vitamine, and in whom neuritic symptoms were produced, suggestive of beriberi, by feeding them with yeast extract of brewer's waste extract, the condition was either prevented or cured. Brewer's waste freed from the vitamine made a good vitamine-free food with which to experiment. Yeast extracts have been used in a few instances as a therapeutic measure in infants in idiopathic malnutrition with varying success. The question of the adjustment of dosage must first be settled before any extensive work with human beings can be done. But it can be seen that the brewer's product—the beer—would be rich in these vitamins, and in a concentrated form. It is not impossible that hard workers who cannot, perhaps, afford the choice of food containing the vitamins, demand beer because it contains the vitamins in concentrated but cheap form. Since the question of the alcohol content of the average beer is negligible, it is, in all likelihood, not wise to withdraw the beer allowance from the laboring element who demand it.

The value of butter fat in butter, cream and milk, and the fat of cod liver oil in the treatment of rachitis is due to the presence of large quantities of anti-rachitic vitamins in them. It is for this reason that these forms of fats must be conserved for children when there is a fat shortage. The animal fats, the various margarines, are very low in this form of vitamine, and while they may and ought to be fed to adults, they are distinctly harmful to children.



The Lister Institute of London found that in respect to the prevention of beriberi, the embryo of the grain of the cereal was even richer in anti-beriberi vitamine than the cortex. When over-milled, according to modern milling methods, this destruction of vitamins had to be made up from other sources. There is waste, then, where none need have occurred. The appearance and the taste may be better in the over-milled or bleached product, but the food value is practically destroyed. The greatest anti-beriberi vitamine is contained in unmilled cereals and pulse, where the vitamins are concentrated and more or less uniformly distributed; and eating the whole product insures the greatest quantity of vitamine. Eggs, or egg preparations, contain many anti-beriberi vitamins, but it must be remembered that if raw egg-white is consumed, the vitamine is lost because the colloidal nature of the raw egg-white prevents its digestion; but when properly prepared, it is one of the most prolific sources of vitamine, but, of course, very expensive. While the cereals contain the anti-beriberi vitamine, they seem to lack another vitamine necessary to prevent another nutritional disease, namely, pellagra. Cereal products lack the anti-pellagra vitamine, and unless this deficiency is made up from other sources, pellagra must develop. In the South, the presence of so much pellagra seems to be due to the exclusive consumption of cereals, because they are cheaper than other foods. Yeasted flour contains much vitamine, but a great deal of it must be ascribed to the vitamine in the yeast. Meat and fresh vegetables contain moderate amounts of vitamine, but not in very concentrated form. In the case of meat, the consumption of large quantities is harmful to metabolism, from the over-ingestion of proteins, and yet the vitamine consumed is not proportionally beneficial.

The keeping powers of most vitamins are good. They can be heated to moderate degrees of temperature without harm. Some are more hardy than others. The anti-beriberi vitamine can be heated even up to 100° C. without harm. The anti-scorbutic and the anti-rachitic vitamins are more delicate in respect to heat. Canned foodstuffs that have been superheated in the canning process are usually lacking in vitamins because destroyed by the heat. Ordinarily, no matter what the food that is canned, it cannot prevent nutritional disturbances if

the sole article of diet. It can be made only a small part of the dietary with safety. Some fresh food is always essential in the dietary, in order that nutritional processes may go on undisturbed. While citrus foods are strongly anti-scorbutic because containing much anti-scorbutic vitamine, the commercial preparations are valueless. Most fruit pulps are poor in vitamins. The anti-scorbutic vitamins soon disappear from food when kept at room temperature, but are preserved for a long time by refrigeration. In the same way, heating milk, even if only to the point of pasteurization, destroys the anti-scorbutic vitamins. Boiled, or even pasteurized, milk is not, therefore, a good diet for infants except as it renders the milk safe from pathogenic organisms. If raw milk could be consumed with safety it would be the best safeguard against scurvy or rachitis. Incidentally it may be noted that fresh cabbage is rich in anti-scorbutic vitamins. During germination of seeds the vitamins are most developed; they are present at this time when not present at other times. This fact has been taken advantage of in foods usually considered poor in vitamins.

In respect to war-time food conservation, it would seem that such food as contains much vitamine would be the subject for intensive cultivation or preparation, to the prejudice of others lacking in vitamins. But no such real distinction between the vitamins can be made, because they are all necessary. All of them seem to have a place in nutrition and to be active in the prevention of one or other form of nutritional disturbance. It is more rational to consume small quantities of food properly balanced as to ration and as to vitamine, because it is the mixture that is desired, and the minor vitamins play as important a rôle as the major ones. Hunger is more easily appeased by small quantities of mixed rations than by large quantities of unmixed or unbalanced diets. As a measure of conservation, it is highly essential to preserve the vitamins of the food by preventing over-milling or other forms of artificial preparation inimical to them.

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#### THE WAR AND INTERNES IN SPECIAL HOSPITALS.

FOR two reasons the Department of the Surgeon-General of the Army has signified its

desire to promote the education of internes in proper hospitals for as long a period as the exigencies of war will permit: Primarily, that the future military surgeon may begin his medical career with as much professional experience as possible; secondarily, so that the organization of hospitals for civilian treatment and for instruction of physicians and nurses may not be unnecessarily disrupted.

How far do these considerations apply to certain special hospitals, such as hospitals for women, children, consumptives, eye and ear cases, and insane, and what should be the policy of the Army with regard to internes in such institutions?

It seems clear that thorough education in all types of cases treated in the above, except maternity and children's hospitals, will have definite value for military purposes and that the same policy with regard to internes in these should be followed as in general hospitals. Probably the children's hospitals may be placed in the same category as the others, as the medical and surgical experience gained therein is such as to afford a substantial foundation for military service, and this, taken into consideration with the desire to preserve the hospital organization, should warrant the placing of children's hospitals on the same basis as general hospitals so far as interne service is concerned.

With hospitals for women the situation is very different. Service therein is intensive in a branch of medical science which has no direct relation to military needs, and therefore such hospitals cannot receive the same consideration as other hospitals as places of preparation for military service.

On the other hand, it would seem that in such hospitals the organizations could be properly maintained by the aid of personnel not fitted for army service. Not every medical student is eligible for active military service of the kind to be anticipated and desired by the young medical man who has at last reached the place in his career where he can be of great value to the country.

General hospitals should give first choice to those who are physically fit for the work in the Army and Navy, while young men who are not physically handicapped should equally seek internships in hospitals where they can obtain the best possible training for military service.

Those who, by reason of physical disqualifications, are not entitled to enter the country's service in its military branches should welcome the opportunity to aid in its general efficiency by engaging in other work essential to welfare.

Thus, by coöperation between hospitals, and between hospitals and student, can we come nearer a solution of the tremendous problem of making the supply of medical men meet the requirements of war.

With the use of women physicians, medical students and the proper allotment of student internes to places where they can be of the greatest use according to their qualifications, it would seem that an obvious difficulty may be at least minimized, and the authorities in medical schools can aid materially in advising their young men as to the proper course to pursue. Some men who have a special interest in obstetrics and gynecology may dislike to abandon the opportunity to specialize in such branches during the period of their internship, and surely the country cannot afford to be without the services of men so especially educated; but the needs of our fighting men are immediate and imperative, and our young men will no doubt be willing to sacrifice their personal ambitions for a time, as many of the older men of the profession have already done.

The foregoing is the result of interviews with officers of the Surgeon-General's Department by a representative of the American Hospital Association. It has been submitted to them and is believed to represent fairly the policy of the Department with regard to internes in special hospitals.

#### FOUR-DAY PUBLIC HEALTH SCHOOL.

MUCH credit is due the Committee on Public Health of the Massachusetts Medical Society for the success of the Four-Day Public Health School which was held May 28-31. Over 225 people were in attendance, representing 61 towns and cities in Massachusetts, 7 other states and 2 foreign countries.

The entire program was presented as scheduled, without a change in speaker or in time, the average attendance at the sessions being about 60.

The session held at the Massachusetts Institute of Technology on Thursday evening had

the largest attendance. Addresses delivered by Capt. Dr. René Sand of the Belgian Army and by Dr. W. W. Peter, director of Public Health Education in China, were most unique and highly appreciated.

The papers delivered at the various sessions were of a uniformly high quality, and to the speakers is due the appreciative gratitude of the organizations coöperating to make the School a success, and of the delegates in attendance.

Representatives of the coöperating agencies, namely, the State Department of Health, the Massachusetts Association of Boards of Health and the U. S. Public Health Service, took part in the program and furnished chairmen for some sessions. The three members of the Committee on Public Health having the immediate care of the arrangements are Dr. Enos H. Bigelow of Framingham, Dr. E. F. Cody of New Bedford and Dr. Annie Lee Hamilton of Boston.

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#### MASSACHUSETTS MEDICAL SOCIETY— ONE HUNDRED AND THIRTY-SEVENTH ANNIVERSARY.

THE Massachusetts Medical Society will observe its 137th anniversary in Boston on Tuesday and Wednesday of next week, June 18 and 19. Attention is directed to the complete program of exercises which appears in another column of this issue of the JOURNAL. Conditions associated with the war will make the sessions this year of unusual interest. Many more members of the Society are absent in the active service of their country than was the case a year ago, and their example will be felt as an inspiration by all who must remain to carry on the work at home. It has wisely and fittingly been decided not to hold the annual dinner this year. Complete report of all the sessions and the entire text of papers presented will appear in successive issues of the JOURNAL during the summer.

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#### REPORTING OF GONORRHEA AND SYPHILIS.

At a meeting of the Public Health Council, held May 21st, the following regulation was

adopted as an addition to the Regulations Governing the Reporting of Gonorrhea and Syphilis.

"Regulation 9. Whenever, in the opinion of the physician reporting the case, because of circumstances or conditions present, the protection of the public health demands immediate action by the local board of health, he shall forthwith report the facts as prescribed in Regulation 7 to the State Department of Health, which shall, in turn, proceed as prescribed in Regulation 8."

By direction of the Commissioner of Health,

JOHN S. HITCHCOCK,

*Director of Division of Communicable Diseases*

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#### MEDICAL NOTES.

PROGRESS OF VENEREAL DISEASE CONTROL.—The United States Public Health Report for May 24, 1918, contains an article on the progress of venereal disease control; it explains the organization of the work which has been done and the regulations which have been adopted by different states. The report contains, also, tables showing the prevalence of malaria in certain states, the prevalence of diseases both in the extra-cantonment zones and among the troops in the United States, and state summaries and foreign reports.

TRUDEAU SANATORIUM.—The thirty-third annual medical report of Trudeau Sanatorium, New York, has been submitted for the year 1917. During the past year, two sessions of the Trudeau School of Tuberculosis have been held. The medical report shows that more patients were treated, they remained a shorter time in the Sanatorium, and the immediate results were much better than in previous years. Many medical problems have been studied, including the effect of typhoid fever and its vaccine upon tuberculous patients. The research and clinical laboratories have been very active and many complement-fixation tests have been made. The work of the x-ray department has progressed favorably. In the D. Ogden Mills Training School of Nurses, the lecture courses have been re-systematized. Every week, there has been held a diagnosis conference of the medical and nursing staff; these have been of great value both to the staff and to the students. The re

port includes the thirteenth medical supplement, and the following studies: "Serological Studies in Tuberculosis," "Prognosis in Tuberculosis from the Standpoint of the Occurrence of Hemoptysis and Tubercle Bacilli in the Sputum," "The Pleural Reaction to Inoculation with Tubercle Bacilli in Vaccinated and Normal Guinea Pigs," and "Experimental Tuberculosis of the Liver."

**FIVE THOUSAND ARMY NURSES WANTED.**—Special committees to recruit 5000 trained nurses, sorely needed in the Army, are being organized in all the cities within jurisdiction of the Atlantic division of the American Red Cross. The campaign will begin on June 3, and will be continued ten days. While the immediate goal is 5000 nurses, it will be necessary to have 10,000 available before January 1, 1919, from the Atlantic division alone.

The Red Cross will seek to impress upon the public the fact that services of nurses should not be used in private cases, except cases of life and death. Doctors, too, will be urged to dispense with nurses so far as possible. Those who are married and not actively engaged in their profession or otherwise ineligible for war service, will be asked to become "home defense nurses." These nurses will be assigned for a few hours daily to work in baby-saving stations, in hospitals, or in private families where the need is urgent.

**BUBONIC PLAGUE ON STEAMSHIP "SOMALI."**—When the steamship *Somali* arrived at Gravesend on May 30, from Bombay, it was found that three members of the crew were suffering symptoms suggesting the bubonic plague. Two cases, one of which ended fatally, proved to be the plague. During the voyage several rats were killed in the storeroom. The ship is now moored off Gravesend. It will be disinfected and all the rats on board will be killed.

#### WAR NOTES.

**AMERICAN PHYSICIAN HONORED.**—Lieutenant J. T. McCarthy, attached to an Essex regiment, one of the first American doctors serving in France, has been awarded the British military cross.

**MEDICAL APPOINTMENTS.**—The following appointments in the Medical Reserve Corps have been announced: First lieutenants: William E.

Gallagher, Camp Devens; Robert M. Lord, Children's Hospital, Boston; and Carl C. Persons, St. Luke's Hospital, New Bedford.

**TWELVE AMERICANS HONORED.**—The British military cross has been awarded twelve Americans of the United States Army Medical Service: Captain Thomas Walker, and Lieutenants Linwood M. Gable, Arthur I. Haskell, James B. Clinton, Samuel Adams, Gouverneur Boyer, Harold Foster, John Gregg, Albert I. L. Jones, Baldwin L. Keyes, Guy D. Tibbetts, and Harvey C. Updegrave.

**BAY STATE NURSES CALLED.**—Surgeon-General Gorgas has sent an urgent request to the American Red Cross for 1000 trained nurses. These nurses must be enrolled and on duty by the middle of June.

They will be used in the hospital service of the United States both at home and abroad.

As soon as this quota is filled, 24,000 more must be enrolled by the end of the year.

Application can be made to local Red Cross chapters and to the Nursing Department of the New England Division headquarters, 755 Boylston Street, Boston. Massachusetts is expected to supply 387 of the first 1000, and 1580 of the next 24,000.

**ARMY HEALTH CONDITIONS.**—Health conditions among the soldiers in divisional camps and cantonments are better now than at any time since last November. There has been a marked decrease in the death rate, a rapid falling off in the number of pneumonia cases and fewer cases of measles. The death rate for the week ending May 24 was 1.90 in the divisional camps. This group has, also, the lowest sick rates.

**SICKNESS IN GERMAN ARMY.**—It is reported from Amsterdam, in a message of April 24, that, according to a Berlin telegram, Surgeon-General Schultzen, speaking in the Main Committee of the Reichstag on the health of the German Army, said:

"The general state of health of the troops is very good. The rumors regarding the increase of venereal diseases are exaggerated. In the field army the number of cases remains some percentage points lower than in the last five years of peace. They have further decreased in the past year, as also in the home army, where they are slightly higher than in peace time.



"We have discharged something over 37,000 men on account of tuberculosis, whereas the French discharged 88,000 in the same period.

"About 90 per cent. of those discharged from the hospitals are fit for further military service, and 70 per cent. for service at the front. About 1 per cent. of those discharged have died. Suicides in the army have considerably decreased. As compared with the first year of the war, cases of sickness have declined 35.5 per cent."

**TUBERCULOSIS IN GERMAN PRISON CAMPS.**—The Rockefeller Foundation has been investigating the reason for the spread of tuberculosis among the captured Allied soldiers in German prison camps. Dr. Livingston Farrand, who, for a year has been director of the Rockefeller Foundation Tuberculosis Commission to France, believes that this condition is due to overcrowding and not to a deliberate attempt of the Germans to spread germs among the soldier prisoners.

George M. Vincent, president of the Rockefeller Foundation, who has spent two months inspecting its work in England, France and Italy, has reported that the Foundation's medical staff in France, headed by Dr. Selskar Gunn of the Massachusetts Institute of Technology, is making rapid progress in teaching French doctors and nurses how to take up the fight against tuberculosis. The American Red Cross is co-operating with the Foundation.

**WAR RELIEF FUNDS.**—On June 4, the totals of the principal New England War Relief funds reached the following amounts:

Belgian Fund .....	\$679,260.39
French Orphanage Fund ..	367,395.37
Syrian-Armenian Fund ..	306,418.67
Italian Fund .....	174,391.90
La Fayette Fund .....	39,068.23

**GRIPPE EPIDEMIC IN SPAIN.**—Apparently Spain is in the midst of an epidemic which is spreading rapidly. The exact nature of the disease has not been determined; it is not, however, fatal. Reports from the provinces show that 30% of the population is affected. Business life in Madrid is almost paralyzed; theatres and moving picture houses are deserted; tramways have reduced their service by two-thirds because of illness of employees.

King Alfonso and many other prominent persons, including the President of the Chamber

of Deputies, the Ministers of Finance, Marine, and Public Instruction, and the Under Secretary to the President, are suffering from the disease. In Madrid there are more than 150,000 persons afflicted and there are many victims in Barcelona, Sargossa, and other provinces. The malady extends to the Canary Islands. Several regiments are almost entirely on the sick roll and the military authorities have suspended all manoeuvres. The mortality continues low. The fact that more than six hundred doctors are suffering from the disease hampers an efficacious fight against the epidemic.

Extra precautions have been taken along the French frontier to prevent the spread of the Spanish epidemic into France. Apparently the disease is influenzal in character.

**MAJ. HARVEY CUSHING HONORED.**—Major Harvey Cushing of the United States Army Medical Service, has received an honorary fellowship from the Royal College of Surgeons of Ireland at Dublin. Major Cushing, thanking the college, is reported to have said:

"America is in the war 'with both feet,' and has made the discovery that Germany is an insane nation. There was some delay, due largely to the fact that the United States has a very mixed population and that, while Americans of 100% were wanted, there were, in the beginning, many who graded from 50% upward. But now, like its neighbor Canada, America is in the war as a united country.

"You here in this beautiful land are next to us, and we expect you to be in as a country and you certainly will. I know the Irish. There are more Irish in America than here; more, I think, in Boston than in Ireland, and it is true that the Irish, wherever they are, are on the top. If there is any trouble, if anyone needs support or counsel, he is sure to find an Irishman on his right or left hand. I know what Ireland already has done in the war. Nothing has been finer than the work of the men from Dublin and Munster in Gallipoli. All last summer I was behind the army in which the southern and northern divisions were fighting side by side and nothing better was done than the work of these soldiers. The time is coming when there will be universal military service in every country, thus making for a sense of devotion to one's country which comes only from giving service to it."

## BOSTON AND MASSACHUSETTS.

**WEEK'S DEATH RATE IN BOSTON.**—During the week ending June 1, 1918, the number of deaths reported was 188, against 271 last year, with a rate of 12.49, against 18.30 last year. There were 33 deaths under one year of age, against 42 last year.

The number of cases of principal reportable diseases were: diphtheria, 47; scarlet fever, 25; measles, 269; whooping cough, 44; typhoid fever, 1; tuberculosis, 57.

Included in the above were the following cases of non-residents: diphtheria, 17; scarlet fever, 3; measles, 5; tuberculosis, 11.

Total deaths from these diseases were: diphtheria, 4; measles, 5; whooping cough, 6; tuberculosis, 19.

Included in the above were the following non-residents: diphtheria, 1; tuberculosis, 1.

**CAMBRIDGE HOSPITAL NURSES' HOME.**—The new nurses' home at the Cambridge Hospital was opened to visitors for inspection on June 4.

**GRADUATION EXERCISES OF THE BOSTON CITY HOSPITAL TRAINING SCHOOL FOR NURSES.**—Before a large audience composed of friends of the class and officials of the City Hospital, the 39th annual graduation exercises of the Training School for Nurses were held May 31. Thirty-five members were awarded diplomas. The total number of graduates now is 1300.

Addresses were made by Dr. George W. Gay, senior surgeon, Dr. George C. Sears of the Hospital Staff, and Mayor Peters. Dr. Gay made a plea for nurses for Government service, saying that the demand was for fifty thousand, while the available supply comprised only the forty thousand in the training schools of the country. Dr. Sears made a comparison of the nurses of today with those of thirty years ago. He also presented the diplomas. Mayor Peters spoke of the demand for the woman power as well as the man power of the nation. He lauded the work of Base Hospital Unit No. 7, organized at the City Hospital and now in national service.

A prize of \$10 in gold, offered by Miss Anna Gibson of the class of 1917, for the best standing in laboratory technic, was awarded to Miss Winifred Helen Macomber.

**MEMORIAL HOSPITAL FOR DEDHAM.**—George H. French has left the residue of his estate,

amounting to several thousand dollars, to the town of Dedham, Mass., for the purpose of establishing the Olive Cheney French and George H. French Memorial Hospital Fund. The town will use the interest of the principal for immediate hospital purposes.

**SCARLET FEVER EPIDEMIC CLOSES SCHOOLS OF HARDWICK.**—Five cases of scarlet fever have been reported in Hardwick, Mass. The State Board of Health has ordered that all schools be closed.

**EFFECT OF FREEZING ON THE ORGANISMS OF TYPHOID FEVER AND DIPHTHERIA.**—The outbreak of diphtheria and typhoid fever during the summer of 1917 led to experiments by the Massachusetts State Department of Health on infected ice cream, to determine whether typhoid bacillus and diphtheria bacterium would survive freezing. In both cases, the organisms were found to survive freezing, and there is no doubt that ice cream is a very effective agent for distributing infection.

**INFANTS' HOSPITAL.**—The Infants' Hospital has submitted its 35th annual report, for the year 1917. During the year, the Hospital has cared for 728 babies. Thirty nurses have received their diplomas and 78 nursery maids have finished a course of instruction. The work of the Social Service Department has been of great value in investigating and improving the conditions in homes. Many members of the medical staff have been called to active service in Europe.

**TUBERCULOSIS HOSPITAL.**—The Middlesex County Commissioners have voted to postpone until after the war the erection of the Middlesex County Tuberculosis Hospital in Waltham. The action was in accordance with the expressed wishes of the Capital Issues Committee of the Federal Reserve Board, Washington, which declared in favor of postponement on the ground that funds, labor, and materials should be conserved. The cost of the hospital has been estimated at \$550,000.

**HOSPITAL EFFICIENCY METHODS.**—Dr. John G. Bowman, executive director of the American College of Surgeons, and Rev. Charles B. Moulinier, president of the Catholic Hospital Association and chancellor of Marquette Medical

School of Milwaukee, are in Boston in the course of a tour of the country inculcating the methods and ideas of the American College of Surgeons, an organization composed of four thousand surgeons of the United States and Canada. The organization desires that hospitals practise efficiency methods used in the business world. The plan is that every hospital have a complete record of every surgical case, and that at regular intervals the staff of each hospital meet and go over the cases. The Association corresponds to the Royal College of Surgeons of England. The officers are: William J. Mayo, Minn., president; Rudolph Matas, New Orleans, first vice-president; Charles E. Kahle, Chicago, second vice-president; Franklin H. Martin, Chicago, secretary-general; John G. Bowman, Chicago, director; Albert J. Ochsner, Chicago, treasurer.

#### NEW ENGLAND NOTES.

**MEDICAL REFEREES OF NEW HAMPSHIRE.**—The following medical referees have been appointed in New Hampshire.

For Grafton County, Dr. John Wheeler of Plymouth, Dr. Lawrence of Haverhill, and Dr. Frederik von Tobel of Lebanon; for Merrimack County, Dr. Loren A. Sanders of Concord.

Rev. Frederik John J. Brophy of Penacook has been appointed to succeed Major James F. Brennan of Peterboro on the State Board of Charities and Correction, and Dr. Fred E. Clow of Wolfeboro has been appointed to the State Board of Registration in Medicine.

**DR. DRUMMOND APPOINTED TO MAINE HEALTH COUNCIL.**—Dr. Joseph B. Drummond of Portland has been nominated a member of the Public Health Council for four years, and also a member of the State Board for Regulating the Practice of Embalming.

**PUTNAM MEMORIAL HOSPITAL.**—The Henry W. Putnam Memorial Hospital was formally opened on May 30 at Bennington, Vt. On June 10, the hospital will be ready to receive patients. Henry W. Putnam of San Diego, Calif., a former resident, gave to the village the Bennington waterworks for the purpose of building and endowing the hospital. In April, 1916, Henry W. Putnam of New York, son of the founder of the association, made the organization a gift of \$90,000.

The building has a frontage of 188 feet,

with a central wing 98 feet in length. When all the facilities of the building are available, it will be a fifty-bed institution. At the present time, the nurses and officials will be quartered in the building and the number of private rooms will be limited. Plans have been secured for a nurses' home to be built on the grounds, but construction will be delayed because of the war.

**VENEREAL DISEASE REPORTING.**—The importance of reporting cases of venereal diseases is becoming recognized. In the April bulletin issued by the Massachusetts Society for Social Hygiene, the following article appears:

"Vermont is the first State to pass a law requiring that all cases of venereal diseases shall be reported by name direct to the State Board of Health. This law went into effect in 1915. New Jersey passed a similar law in 1917.

For years strenuous objections to the advisability of reporting venereal diseases have been quite general.

The last Report of the Royal Commission on Venereal Diseases considered these objections had some weight, but concluded that with the extension of popular knowledge it is possible that notification in some form will be demanded.

The confidential relation between patient and physician must be maintained, but society is as much entitled to a knowledge of the prevalence of the infectious diseases, syphilis and gonorrhea, as the other infectious diseases.

On December 18, 1917, the Public Health Council of the State Department of Health voted to add syphilis and gonorrhea to the list of diseases declared dangerous to the public health.

In 1915 the State of West Australia passed a statute on the notification of venereal diseases, and on this scheme as a basis the Massachusetts State Department of Health passed the following regulations governing the method of reporting gonorrhea and syphilis:

1. At the first visit the physician shall furnish to each patient treated or examined a numbered circular of information and advice.
2. The physician shall at this time fill out a numbered report blank attached to the circular of advice to be mailed to the State Department of Health.

The following facts are reported: Name of disease, age, sex, color, civil state, occupation,

duration of disease and degree of infectiousness. The name and address of the patient shall not be given.

3. When a patient with syphilis or gonorrhea in an infectious stage, applies to a physician for treatment, the physician shall ascertain whether the patient has received a numbered circular of advice; if not, the physician shall give him one and report the case to the State Health Department. If he has received a circular from another physician within the State, the last physician shall not report the case to the Health Department, but he shall ascertain the name and address of the first physician and notify him of the patient's change of medical adviser.

When a patient with gonorrhea or syphilis in an infectious stage fails to return to the treating physician for a period of six weeks later than the appointed time for treatment and the treating physician receives no notification of a change of physicians, he shall notify the State Department of Health, giving name and address of the patient, disease and serial number, date of report and name of physician who originally reported the case. On receipt of this report, the Department of Health will report the case, name and address to the Board of Health of the city or town of the patient's last address, as a person dangerous to the public. The name of the physician making this report shall not be given by the State Department of Health.

### The Massachusetts Medical Society

#### PROGRAM OF THE ONE HUNDRED AND THIRTY-SEVENTH ANNIVERSARY.

ALL of the exercises of the anniversary will be held on Tuesday and Wednesday, June 18 and 19, 1918, at the Boston Medical Library, 8 The Fenway. Following is the entire body of the program:

#### GENERAL INFORMATION.

A BUREAU OF INFORMATION will be maintained by the Committee of Arrangements during Tuesday and Wednesday in the lobby of the Boston Medical Library, the headquarters of the Society.

ALL FELLOWS ARE REQUESTED TO REGISTER as early as possible at the Bureau of Information.

ALL GENERAL AND SECTION MEETINGS will be held at the Boston Medical Library. Parking space for

automobiles, with supervision, will be provided. Inquire of the police officer in charge. The new elevator in the main hallway has been installed, and will be running.

By vote of the Council, February 6, 1918, the Annual Dinner will be omitted this year, because of war conditions.

The Boston Medical Library, 8 The Fenway, will be open for the inspection and use of the Fellows during the days of the meetings. An exhibit of early printed books and articles of interest to Fellows will be held in Holmes Hall.

The Harvard Medical School, 240 Longwood Avenue, and the Tufts College Medical School, 416 Huntington Avenue, will be open for inspection by the Fellows both Tuesday and Wednesday.

JUNE 18, 1918.

#### TUESDAY MORNING.

There will be clinics and operations on the surgical services, and ward visits on the medical services, at the following hospitals:

##### THE BOSTON CITY HOSPITAL.

Operations in the Surgical Amphitheatre and in the smaller operating rooms on the Surgical Floor, beginning at 10 o'clock.

Operations in the Gynecological Operating Rooms on Ward S and Ward H, by members of the Gynecological Staff, beginning at 10 o'clock.

Exhibition of cases on the Medical Wards, by members of the Medical Staff, beginning at 9.30.

##### BOSTON LYING-IN HOSPITAL.

Ward Visit at 10.30 a.m. Operations depending on material in hospital at the time.—Drs. J. R. Swift and H. V. Hyde.

Demonstration of Gas-Oxygen Anesthesia for Prenatal Examination, at 10.30 a.m.—Dr. R. S. Titus.

Regular Morning Prenatal Clinic at 4 McLean Street.—Dr. J. L. Huntington.

##### CARNEY HOSPITAL.

9-12. Operations will be performed by the Surgical Service, and a Medical Clinic will be held in the wards.

##### CHILDREN'S HOSPITAL.

9.30-10.00. Dr. Robert W. Lovett will demonstrate the Orthopedic Splints, and other apparatus in use in the United States Army.

10.30-11.30. Dr. John Lovett Morse.—A Visit in the Medical Wards.

11.30-12.30. Dr. W. E. Ladd.—Surgical Clinic in the Amphitheatre.

##### FREE HOSPITAL FOR WOMEN.

###### ROOM 1.

7.15 A.M. Dr. W. P. Graves.

Plastic and Coeliotomy for Prolapse.

Hysterectomy for Fibroid.

Coeliotomy for Retroversion.

Repair of Complete Laceration of Perineum.

Radium Application for Uterine Hemorrhage.

###### ROOM 2.

7.30 A.M. Dr. R. G. Wadsworth.

Plastic and Coeliotomy for Retroversion.



- 9.00 A.M. Dr. F. A. Pemberton.  
Plastic and Coeliotomy for Prolapse.  
Hysterectomy for Fibroid.  
Coeliotomy for Retroversion.

#### INFANTS' HOSPITAL.

- 10.00 A.M. Chest Examination in Infancy, illustrated by cases and x-ray.

#### MASSACHUSETTS GENERAL HOSPITAL. BIGELOW SURGICAL AMPHITHEATRE. 10.30 A.M.-11.30 A.M.

1. Demonstrations of Proteid Skin Reactions.—Dr. J. L. Goodale, Dr. John Turnbull.
2. Pernicious Anemia.—Dr. George R. Minot.
3. New Problems in the Old Field of Syphilis.—Dr. C. Morton Smith.
4. Remarks on X-ray Therapy.—Dr. G. W. Holmes.
5. Treatment of Splenic Anemia by Transfusion.—Dr. R. D. Curtis.

11.30 A.M.-1.00 P.M.

OPERATIONS BY THE SURGICAL STAFF.

#### PETER BENT BRIGHAM HOSPITAL.

- 10-12 A.M. Medical Service: Ward visits.—Dr. H. A. Christian.  
9-12 A.M. Surgical Service: Operations in Surgical Building.—Drs. David Cheever and W. C. Quinby.

#### PSYCHOPATHIC HOSPITAL.

Members of the Society will be taken through the wards of the Psychopathic Hospital in small groups. A special clinic will be given in the Assembly Room for members of the Society at 10.30 a.m. Examples of major groups of mental disease will be briefly demonstrated, including cases.

The laboratories will be open for inspection, and charts, illustrative of the work of the hospital and of the Commission on Mental Diseases, will be on display.

#### ROBERT B. BRIGHAM HOSPITAL.

- 11 A.M. Dr. C. F. Painter will demonstrate cases illustrating the Treatment of Deformities Due to Chronic Arthritis, with emphasis on functional results.  
Dr. C. H. Lawrence will speak on the question of Focal Infection in Chronic Arthritis.

#### ANNUAL MEETING OF THE SUPERVISORS.

BOSTON MEDICAL LIBRARY.  
JOHN WARE HALL.  
11.30 O'CLOCK.

#### TUESDAY NOON.

ANNUAL MEETING OF THE COUNCIL.  
BOSTON MEDICAL LIBRARY.  
JOHN WARE HALL.

#### TUESDAY AFTERNOON.

MEETING OF THE SECTION OF MEDICINE.  
BOSTON MEDICAL LIBRARY.  
SPRAGUE HALL.  
2.30 O'CLOCK.

#### Officers of the Section of Medicine:

DR. WILLIAM H. SMITH, Boston, *Chairman*.  
DR. GEORGE R. MINOT, Boston, *Secretary*.

1. The Relation of Food Idiosyncrasies to the Diseases of Childhood.—Dr. Fritz B. Talbot, Boston.
2. A Clinical Study of Four Hundred Patients with Bronchial Asthma.—Dr. I. C. Walker, Boston.
3. The Present Status of Immunization in Hay Fever.—Dr. J. L. Goodale, Boston.  
(Lieut. Francis M. Rackemann, M.R.C., Boston, will also present a paper on Asthma, if military duties permit.)
4. The Pathogenicity of Non-hemolytic Streptococci.—Dr. S. Burt Wolbach, Boston.

#### TUESDAY AFTERNOON.

MEETING OF THE SECTION OF SURGERY.

BOSTON MEDICAL LIBRARY.

JOHN WARE HALL.

2.30 O'CLOCK.

#### Officers of the Section of Surgery:

DR. JOHN HOMANS, Brookline, *Chairman*.  
DR. HILBERT F. DAY, Boston, *Secretary*.

1. Suspension and Traction Treatment of Fractures in Base Hospital Work and the Application of This Method in Civil Practice.—Dr. George A. Moore, Brockton.
2. Tetanus in the War: Progress in Prevention and Treatment.—Dr. C. A. Porter, Boston.
3. Some Observations on War Surgery in France.—Dr. W. Irving Clark, Worcester.
4. Discussion of Emphysema and Its Treatment in Military Cantonments during the Winter of 1917-1918.—Major Homer Gage, M.R.C., Worcester.
5. Moving Pictures of the Application of Standard Splints in Trench and Front Line Dressings, with Discussion.—Major Kendall Emerson, M.R.C., Worcester.

#### TUESDAY AFTERNOON.

MEETING OF THE SECTION OF TUBERCULOSIS.

BOSTON MEDICAL LIBRARY.

REAR UPPER HALL.

2.30 O'CLOCK.

#### Officers of the Section of Tuberculosis:

DR. WALTER G. PHIPPEN, Salem, *Chairman*.  
DR. JOHN B. HAWES, 2d, Boston, *Secretary*.

SYMPOSIUM ON THE MASSACHUSETTS PLAN FOR CARING FOR CONSUMPTIVES.

1. The State Tuberculosis Sanatoria, and What They Aim to Do.—Dr. Arthur K. Stone, Framingham Centre, Chairman Board of Trustees, Mass. Hospitals for Consumptives.  
Discussion by Dr. W. P. Bowers, Clinton; Dr. E. R. Kelley, Boston; Dr. E. B. Emerson, Rutland.
2. County Tuberculosis Hospitals.—Dr. Olin S. Pettigill, Supt. Essex County Sanatorium.  
Discussion by Dr. B. H. Peirce, Cambridge; Dr. A. J. Roach, Tewksbury; Dr. A. S. MacKnight, Fall River.
3. Local Municipal Tuberculosis Hospitals.—Dr. Edwin A. Locke, Chief of Staff, Boston Consumptives' Hospital.  
Discussion by Dr. P. C. Devlin, Lynn; Dr. R. A. Rice, Fitchburg; Dr. R. W. Hastings, Brookline.

4. The Dispensary System and Follow-up Work.—Dr. John S. Hitchcock, Northampton, Director Division of Communicable Diseases, State Department of Health.  
Discussion by Dr. E. O. Otis, Boston; Dr. G. A. Buckley, Brockton; Dr. S. Hoberman, Malden.

## TUESDAY EVENING.

THE SHATTUCK LECTURE.  
BOSTON MEDICAL LIBRARY.  
JOHN WARE HALL.  
8 O'CLOCK.

By Dr. E. E. SOUTHARD, Cambridge, Professor of Neuropathology, Harvard Medical School.  
Subject: Shell-Shock and After.  
After the lecture, light refreshments will be served in the Supper Room.

JUNE 19, 1918.

## WEDNESDAY MORNING.

ONE HUNDRED AND THIRTY-SEVENTH ANNIVERSARY.  
BOSTON MEDICAL LIBRARY.  
JOHN WARE HALL.  
9.30 O'CLOCK.

*Business of the Annual Meeting.*

The papers will be devoted to "Certain Aspects of Reconstruction Work in Connection with the War."  
Col. E. G. Brackett, M.C., N.A.  
Major A. B. Kanavel, M.R.C.  
Major H. E. Mock, M.R.C.  
Major H. D. Jump, M.R.C.

It is expected that Sir William Arbuthnot Lane, consulting surgeon to Guy's Hospital, Sir James Mackenzie, physician to the London Hospital, and Col. Herbert A. Bruce, consulting surgeon of the British Armies in France, now in this country, will be present and will address the meeting.

## WEDNESDAY NOON.

BOSTON MEDICAL LIBRARY.  
JOHN WARE HALL.

The Annual Discourse will be delivered by Dr. MYLES STANDISH, Boston.  
Subject: "The Socialization of the Practice of Medicine."

## WEDNESDAY AFTERNOON.

MEETING OF THE SECTION OF HOSPITAL ADMINISTRATION.

BOSTON MEDICAL LIBRARY.  
SPRAGUE HALL.  
2.30 O'CLOCK.

*Officers of the Section of Hospital Administration:*

- Dr. HOMER GAGE, Worcester, *Chairman*.  
Dr. CHANNING C. SIMMONS, Boston, *Secretary*.  
1. Hospital Standardization: What It Means.—Dr. John T. Bottomley, Boston.  
2. The Administration of a Military Base Hospital and Its Comparison with a Civil Hospital.—Lieut. Col. Channing Frothingham, M.C., N.A. Discussion opened by R. B. Greenough, Surgeon, U.S.N.R.F.  
3. The Need of Systematic Teaching of Hospital Internes.—Dr. E. H. Bradford, Boston.  
Discussion opened by Dr. C. A. Porter, Boston.  
4. Case Histories in Municipal, County, and Other Hospitals of Less Than One Hundred Beds.—Miss Mary Riddle, Supt. Newton Hospital.

- Discussion opened by Dr. W. P. Bowers, Clinton.  
5. Social Service and Follow-up Work.—Dr. Richard M. Smith, Boston.  
Discussion opened by Mr. Michael M. Davis, Jr., Supt. Boston Dispensary.

## WEDNESDAY AFTERNOON.

COMBINED MEETING OF THE SECTIONS OF MEDICINE AND SURGERY.  
BOSTON MEDICAL LIBRARY.  
JOHN WARE HALL.  
2.30 O'CLOCK.

*Chairmen:* Dr. WILLIAM H. SMITH, Boston; Dr. JOHN HOMANS, Brookline.

*Secretaries:* Dr. GEORGE R. MINOT, Boston; Dr. HERBERT F. DAY, Boston.

1. The Treatment of Pregnancy and Labor Complicated by Cardiac Lesions.—Dr. F. S. Newell, Boston.
2. Heart Lesions in Anesthesia.—Dr. F. L. Richardson, Boston.
3. The Normal Heart in the Navy.—G. F. Freeman, Medical Inspector, U.S.N.
4. The Consideration of Infections of the Nose and Throat as an Etiological Factor in Endocarditis.—Dr. George L. Tobey, Jr., Boston.
5. The Use of the X-ray in the Examination of the Heart and Aorta.—Dr. George W. Holmes, Newton.

The discussion of these papers will be opened by Dr. Henry A. Christian, Boston.

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**Miscellany.**

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## DRUG ADDICTION.\*

For some time past the prevalence of drug addiction has been regarded as a serious public health menace by persons who have given the matter any consideration. The evil became so widespread that federal, state and municipal authorities have attempted to deal with it by drastic legislation; apparently this has failed, for the whole subject has recently been subject to state investigation to discover just what is needed to control the evil. The chief points now under discussion and investigation relate to the causes and prevalence of drug addiction; the problems of relief and cure of the habit; and measures destined to safeguard and control the dispensing of habit-forming drugs.

The matter has recently been studied by the Public Health Committee of the New York Academy of Medicine and the New York Psychiatric Society, with the result that the following recommendations have been formulated:

*Public Health Committee, Academy of Medicine and New York Psychiatric Society.*

1. We recommend that the Federal Government take such measures as are feasible to abolish the manufacture of heroin altogether.
2. We recommend that the Federal Government be urged to adopt such legislative measures as will control and regulate the sale and distribution of opium and its derivatives and of cocaine, from the

\* From the weekly bulletin of the New York Health Department.

time of its manufacture to the time of its final distribution; also, that it take measures to prevent the importation of these drugs except under proper conditions.

3. We recommend that the Federal Government do not at present extend its jurisdiction to the control of all habit-forming drugs, but that the control of special drugs be taken up as occasion seems to demand. Experience in New York City and the East shows that there is no great prevalence of drug habit aside from that of opium and its derivatives.

4. We recommend that a thorough study be made of the extent and causes of drug addiction, such studies, for example, as will give information as to the age, sex, occupation and environment, and the mental and physical condition of victims of the drug habit, and as to how their habit was formed.

With regard to the cause and frequency of the habit, we can make only provisional statements. So far as our knowledge goes, the drug habits formed as the result of long and painful sickness, and as the result of painful surgical operations, and as the result of mental causes, like sorrow, depression and apprehensive states, constitute at present as in the past, a negligible proportion of the total.

The habit has largely been formed in recent years by association and imitation, by boys and young men and women who are often quite ignorant of the dangers of the habit. Examination of a long series of addicts at Bellevue Hospital shows that about four per cent. formed the habit through the advice and prescription of unscrupulous physicians who utilize what is known as the reduction treatment as a cover for the reprehensible practice.

So far as the number of addicts is concerned, we find some estimates by Martin T. Wilbert, United States Public Health Service Bulletin No. 321, to the effect that there are now over 175,000 addicts in the country. Estimates made by Dr. Kirby show that there would be perhaps 7,000 to 8,000 in Greater New York. Dr. Kirby's estimates are based on the statistics of Bellevue, Metropolitan and Kings County Hospitals, and on the reports from the hospitals of the Department of Correction.

There is an impression among some that the drug-addiction is *enormously prevalent* and is *growing rapidly* and becoming a serious menace to society. It is extremely important to find out the truth as to this. The Public Health Service states that about four million grains less of opium were imported into the United States in 1915 than in 1914, and about five million less than in 1913, but this may be due to the war.

5. We recommend that psychological and psychological tests be made of a long and definite series of addicts.

No serious and comprehensive study of these problems has yet been made so far as we can find. Such information upon the subject of drug addiction can be gathered best through the agency of paid experts who will visit hospitals, courts, prisons and reformatories and who will interview such physicians and judges as are experienced in these matters.

6. We recognize that the surgeon-generals of the Army and Navy have taken a special interest in the subject of drug addiction. We recommend that if it has not already been done, some special study be made of the condition of drug addiction in the Army and Navy and that special care be taken to discover the existence of addiction in recruits. We understand that the Surgeon-Generals of the Army and Navy are already making special provision for the care and treatment of drug addicts.

7. We recommend that an attempt be made to plan some means of education of young men and women as to the dangers of habit-forming drugs. We advise the use of "movies" or any sensational methods.

8. We recommend that more attention and publicity be given to the facts which appear to have been established by long experience at Bellevue Hospital

and elsewhere. The experience at Bellevue Hospital, after testing with many cures, shows that the drug can be withdrawn from the victim without any special cure being used, and it seems to be established that withdrawal can almost always be done safely and surely under ordinary hospital conditions where there is competent nursing and control.

9. We recommend very strongly that treatment for drug addiction should be given to patients only in properly organized hospitals or under institutional conditions, for it is the experience and conviction of all that drug addiction can be relieved and cured best in this way.

10. We recommend that the State do not at present undertake the cure of drug addiction, because the treatment and the subsequent plan of coöperative contact required for success is long, expensive and difficult unless carried out in the local community itself, and the State is not now equipped to undertake such work.

We recommend that in preference to this, at the present time the State do what it can to prevent the development of new cases and encourage provision for the relief of present sufferers.

11. We recommend, for the relief of present sufferers, and perhaps at times for radical treatment, the use of psychopathic hospitals or pavilions, and that special provisions be made in general hospitals throughout the State to care, under proper control, for those who ask for a withdrawal treatment. This we think, is what is due the patient who by law is deprived of the drug.

12. Finally, pending action by the Federal Government for the better control of habit-forming drugs, we recommend that the State of New York enact some law which will control the matter of drug addiction and the use of drugs by physicians in a better, more efficient and more practical way than does the present law. We leave the definite solution of this as a separate problem in technical legislation.

#### SOCIETY NOTICE.

HARVARD MEDICAL ALUMNI ASSOCIATION.—The annual meeting of the Harvard Medical Alumni Association will be held this year at the time of the meeting of The Massachusetts Medical Society, on Wednesday, June 19 at 2 P.M., in Sprague Hall, Boston Medical Library.

Graduates of the Harvard Medical School are requested to be present. Business: Reports and election of officers.

Graduates of the Harvard Medical School are invited to be present at the Alumni Spread at Cambridge on Commencement Day, June 20, at 12 o'clock.

JAMES B. AYER, Secretary.

#### RECENT DEATHS.

DR. AURELIA SPRINGER, of Lewiston, Maine, aged 82, died at Central Maine General Hospital on June 3. Dr. Springer was born in Dresden, Maine, and had studied medicine both in this country and abroad.

CHARLES FRANKLIN OSMAN, M.D., died at his home in Dorchester, March 9, 1918, aged 62 years.

DR. JOHN PERRINS, of Boston, died on May 18th, at the age of 80 years. He was a native of Birmingham, England. He began the study of medicine in England and continued his studies in the United States at the Cincinnati, Ohio, Eclectic College. Dr. Perrins was a member of the Massachusetts Eclectic Medical Society and the Boston District Eclectic Society.

# The Boston Medical and Surgical Journal

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## The Massachusetts Medical Society.

### ANNUAL DISCOURSE.

NOTE.—At an adjourned meeting of The Massachusetts Medical Society held Oct. 3, 1860, it was Resolved, "That The Massachusetts Medical Society hereby declare that it does not consider itself as having endorsed or censured the opinions in former published Annual Discourses, nor will it hold itself responsible for any opinions or sentiments advanced in any future similar discourses."

Resolved, "That the Committee on Publications be directed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

### THE SOCIALIZATION OF THE PRACTICE OF MEDICINE.\*

By MYLES STANDISH, M.D., S.D., BOSTON.

By the phrase, "The Socialization of the Practice of Medicine," I mean the tendency of the community as a whole to take over the care of the individual when he is ill.

Social, scientific and economic changes have come with great rapidity in the last few decades. They have already notably modified the practice of medicine and promise to do so to a much greater extent in the future. It is the socialistic tendency of these changes that I am about to consider in this discourse. We who practise medicine at the present time scarcely appreciate how recent are the conditions under which we do our daily work.

Until the establishment of the Massachusetts

General Hospital in 1811, such an institution was unknown in New England. There were, it is true, pest houses, or lazarets, and almshouses, but these cannot truthfully be said to have been for the care of the sick; they were, rather, places for the segregation of cases of smallpox, the insane, etc., and were for the protection of the community rather than for the treatment of the persons who were compulsorily placed therein. Such places were managed by individuals to whom the town had practically auctioned off the job, the lowest bidder receiving the contract.

Not until 1830 did the Commonwealth undertake to care for any group of its citizens in need of medical care. In that year the State built the Hospital for the Insane at Worcester, and began to take this class of unfortunates from the almost inhuman conditions under which they were held in the almshouses.

Even then the idea of caring for people who were ill was not clearly accepted, as this institution was called an "asylum."

From the establishment of these two institutions we must date the great growth which has since developed in the care of the sick by the community in this Commonwealth. Both institutions were, in principal intent, for the housing as well as the medical care of the patients.

\* Delivered before the Massachusetts Medical Society, at Boston, June 19, 1918.



Previous to that, the Boston Dispensary had been established, in 1796, for the medical relief of the poor, in order that the sick might be attended and relieved in their own houses, and that those who had seen better days might be comforted without being humiliated; that is, treated as paupers. It was incorporated in 1801, and by 1825 bitter complaints of its operations as a medical charity began to be voiced by the profession.

The next step was when, on the same day in 1846 that ether was first used as an anesthetic for a surgical operation at the Massachusetts General Hospital, the Board of Trustees of that institution gave formal recognition to an out-patient service which must have sprung up unauthorized before that date, because the Trustees voted that records should be kept of patients living outside who came to the hospital for treatment. Since that memorable day in 1846 the number of hospitals with out-patient services has rapidly increased. There are now 20 such hospital clinics in Boston, and the total number of individuals treated in a year is about 300,000. Of course, a certain proportion of these patients are either "rounders" or the same individuals going to different clinics for various complaints, but still it is probable that there are at least 270,000 people who receive medical treatment free of expense to themselves in this city every year—a large percentage of the total inhabitants of the city.

Suburban and other cities are rapidly reproducing this condition in their own communities, having about 33,700 individuals attending out-patient departments of hospitals in a year.

In 1864 the City of Boston established a hospital for the care of its own citizens, at the public expense, if necessary. This hospital in the fifty odd years of its existence has grown to be a great institution of 1088 beds, and received in 1916 an appropriation of nearly \$800,000 from the money raised by taxes.

An out-patient department was immediately established at this institution, and soon had a very large clientele. Since that date many other large cities and towns have, directly or indirectly, established hospitals for the treatment of their citizens when ill.

In 1895 the State, which had already increased its institutions for the care of the insane from one to four, also established a hos-

pital for dipsomaniacs and other drug addicts at Foxboro.

The institution at Tewksbury had changed its character, largely, from an almshouse to a large modern hospital for the treatment of such chronic cases as fell into the care and support of the Commonwealth.

In 1895, also, the Boston City Hospital established the first separate hospital for the treatment of infectious diseases, which, under the pressure of the Board of Health, tends more and more to receive a large and increasing proportion of all such cases in the community and which will undoubtedly in the future take care of all infectious cases excepting only such persons as can, by means of their wealth, or better housing conditions, give the best of care and isolation to their sick.

The State has passed laws which, in theory at least, compel each and every town, or group of towns, to maintain an isolation hospital for smallpox, and doubtless this law will be eventually broadened to include all other infectious diseases. Such a widening of the scope of all institutions for the care of the sick is the undoubted tendency of the day.

From 1895 to 1898 the Commonwealth established its great hospitals for the care of the tuberculous.

In 1906 the City of Boston established a municipal hospital for the same purpose, and in 1907 the Commonwealth passed a mandatory act compelling each city and town, or group of small towns, to maintain also a hospital for the tuberculous. The fact that in ten years the State has so largely taken over the care of the tuberculous is an illustration of the rapidity with which such revolutionary changes are adopted in recent years.

In the course of time the out-patient clinics, finding that the giving of medical treatment consisted in something more than the writing of prescriptions, and that they were at a disadvantage, as compared with the private practitioner, who through his domiciliary visits was able by demands, tact and management to control the surroundings and activities of his patients, established the social service personnel of their clinics. The Massachusetts General Hospital was the first and prime mover in this addition to the Hospital Staff. The Social Service at that institution was established in 1905, and has been the means of largely in-

creasing the efficiency of the Out-Patient Clinic, and more firmly and widely establishing public care of the sick. The example of the Massachusetts General Hospital has been widely followed by hospitals, both in Massachusetts and elsewhere.

The most recent example of this assumption by the community of the medical care of an ever-increasing proportion of the population is the establishment in 1916 by the Massachusetts General Hospital of a pay consultation clinic, to which physicians can bring their patients. The fee is small, the number of eminent consultants large, and there are whispers in medical circles that some of these gentlemen have found the burden excessive when the need of finding some time in which to support themselves and their families was considered. This service has at present been discontinued owing to the draft of the medical men into the military service. In this connection, it is interesting to note that the Boston Dispensary maintains a pay clinic for the examination of the eyes for errors of refraction.

There is also a constant tendency for public hospitals to erect private wards for the care of people of means.

The socialization of medical practice is again well shown in the changes or, rather, the additions to the services of boards of health. Our municipal boards of health and the State Department of Health, under certain conditions, maintain laboratories which give free service in the matter of bacteriological diagnosis, blood examinations, etc. The State Department of Health, at the demand of local boards of health, has for years furnished expert consultants to the local physicians in doubtful cases of smallpox, poliomyelitis, local epidemics, etc. It also distributes free, and in some instances itself manufactures, certain biological products used for medical treatment. In the first three months of 1917 it distributed diphtheria antitoxin, smallpox vaccine, typhoid vaccine, paratyphoid vaccine, antimeningitic serum, and silver nitrate ampoules. The latest extension of its service contemplates the division of the State into districts and in each one establishing a center for the care of venereal diseases. That such an arrangement is likely to become an active, widely extended, and eventually a compulsory service will be believed by anyone who has watched the trend of events in the

assumption by the Government of the care of dangerous infective diseases.

Hospitals and boards of health are by no means the only institutions which have taken a part in this socialization of medicine. The public schools have had added to their staffs physicians and a corps of nurses whose duty it is to examine the children for defects or diseased conditions, to advise their parents to have them properly treated and to see that the advice is followed.

This latter element will ultimately be found to have no other result than the eventual assumption of such care as it advises. Indeed, a beginning has been made in at least one city in this State, where the examination of the school children's eyes and the furnishing of glasses at a discount from the ordinary retail price, and when necessary entirely free of expense, has been assumed by the community.

Free dental care of school children has been widely discussed and earnestly advocated, and the establishment of the Forsyth Dental Infirmary for school children in Boston is the first step in this direction and, in all probability, will not long remain unique.

The economic conditions of the 270,000 people who attend hospital out-patient clinics in Boston is indicated by the fact that the report of the special commission, created by the Commonwealth to study the question of social insurance, states that 45% of them earned from \$15 to \$20 per week in 1916, and that 7% of the Out-Patient Department patients of the Boston Dispensary and 11% of the out-patients of the Massachusetts General Hospital were earning from \$20 to \$25 per week.

The lengths to which the communistic conception of medical practice is already advocated is well illustrated in the so-called Framingham Experiment.

This town was taken by the National Association for the Study and Prevention of Tuberculosis, as a representative town with a fair proportion of manufacturing, commercial and residential population; and because it was already well organized socially and medically, one hundred thousand dollars was donated to carry on the work, and the community was to be stimulated to use every means to combat disease. In this experiment all the inhabitants, or certain large groups of them, were to be examined as to their physical condition. Indi-

viduals found to have impaired physical conditions were to be advised to undertake medical treatment. Salaried physicians were to be appointed to take charge of the school children, and everybody was to receive medical care and advice, either from their own physicians, or without expense to themselves. The people were requested to go to their physicians for examination, but as this alone would not bring about such a general examination as was desirable, physicians were brought into town to assist in the medical survey. The Society opened a free clinic for the tuberculous.

Dr. D. B. Armstrong, in charge of the experiment, in an article published in the *Journal of the American Medical Association*, September, 1917, states that there had already been established a permanent full-time medical and nursing service for the school children, with a general supervising nursing service by the Board of Health; a full-time medical and nursing service for at least half of the industrial population; provision for a full-time secretary with plans for nursing and relief service under the auspices of a local civic league. The same gentleman, in an article in the *BOSTON MEDICAL AND SURGICAL JOURNAL*, February, 1917, also suggests a dispensary service, built on the clinic for the tuberculous already established, which might be placed on a pay and self-supporting basis, that would include not only tubercular cases, but also general medical, school medical, infant welfare, and, perhaps, dental services. He says, "It is the hope of the Committee that further developments of the work will demonstrate that on a community basis, disease may be prevented and health created, thereby laying a permanent foundation for future social, economic and spiritual evolution," and further says, "that it ought also to be significant perhaps in its bearing upon the future of medical service in general."

It will need no argument on my part to convince this assembly that if half of the community were given a free medical and nursing service under a popular government, there would inevitably arise a demand from the voting population that the same benefits be extended to the entire people.

All the extensions of the community care of the sick, so far considered, have their origin in the humanitarian, that is to say, the medical side of the question; but for the last two dec-

ades a demand for governmental aid and authority in the extension of medical service has been pressed from the economic side, the argument, summed up in a phrase, being that the health and efficiency of the community was an economic asset of great value, and therefore the law should compel manufacturing corporations and the people themselves to provide for the prompt restoration of health to the incapacitated.

This demand in Massachusetts has resulted, as it has in many other States, in the compulsory insurance by employers of their employees against industrial accidents. This law was passed in this Commonwealth in 1911, and has been amended annually by each Legislature elected since that date.

The law, for the purposes of this discussion, is essentially this: It compels the employer to insure his employees against accident, and the insurance company pays, among other things, for the medical and hospital care of the injured. This at first resulted in the insurance company contracting with a physician in each district to care for all such cases and refusing, except under certain conditions, to allow payments to other physicians. This arrangement pleased neither the patients nor the great body of practising physicians, and in 1917 the law was amended to allow the selection of the physician by the patient, if he chose to exercise that privilege.

The State appointed an Industrial Accident Board, which awards the amount of compensation that should be paid each injured person, and determines the amount of the fee that shall be paid to the physician who had the care of the case. The Board shows the prevailing tendency of the times in the community care of the sick or injured in its liberal interpretation of what constitutes an industrial accident. It has decided that an injury received in a fist fight between longshoremen is an industrial accident, as longshoremen are necessarily rough fellows. Also that an optic atrophy supervening in case of tabes was due to the afflicted man's occupation as a fireman in a boiler room.

The communistic advance of the medical service idea was much in evidence a year ago, when an attempt was made to pass a radical compulsory health insurance act in this and other States.

The essential features of this proposed act, from the point of view of this discussion, were that all wage-earners, except agricultural employees and domestic servants, who earned \$25 a week or less, should be compelled to join a local association for health insurance; that indemnity funds should be provided in part by the employers, in part by the employees, and in part by the Commonwealth, from moneys received from taxes. Other individuals, whose earnings were \$25 a week or less, could voluntarily join these associations.

These local carriers, as they were called, were empowered to contract with a physician or physicians for the care of the sick, to provide medicines and nurses, orthopedic apparatus, eye glasses, etc., to the members of the association, and, with certain limitations, to the members of their families. They were also directed, when able, to build hospitals and sanatoria. This law, by the way, came over from our friends the enemy, as you will see later, and was taken bodily, except that it went higher up the wage scale than the German system.

What proportion of the community would be beneficiaries under the Health Insurance act proposed in this State, I do not know. I have heard it variously estimated as from 30% to 70% of the population of the State. But, whatever the actual number may be, there is no doubt that it would be a very large proportion in any industrial community and would cause a great disruption of the practice of all medical men in manufacturing centers.

This progressive tendency toward the socialization of the practice of medicine has not been peculiar to Massachusetts or America, but has become from decade to decade more and more apparent in Europe.

In England, early in the 19th century, there were mutual aid societies formed among wage-earners to insure themselves against various financial disasters which may happen in the lives of people whose income is such that the bare necessities of life practically consume their entire earnings. These societies gave their members medical aid. They became known under the generic name of the Friendly Societies. They were popular, and it was finally discovered that the organization and management of such societies gave a proper, but material addition to the income of the men who had charge of their activities. As a conse-

quence, many such societies were organized, and there arose quite a competition for members, and the managers eventually canvassed for and accepted members whose incomes were much larger than those for whom the societies were originally intended. Door-to-door canvasses were made for members, and I have seen hand-bills asking for members in the windows of small shops in English provincial cities.

These societies contracted with a medical adviser for treatment of the entire group. Competition among the medical men brought the salaries down to a very low level. Those of you who are accustomed to read the *British Medical Journal* will remember the periodical appearance, for years before the National Insurance Act, of lists of Friendly Societies, with the statement that the salaries which they paid were unfair for the amount of work exacted, and asking all members of the profession to refuse employment under the societies named in the list. It was a burning question with the physicians of England for a quarter of a century.

The first compulsory action of the English Government in the direction of medical care of wage-earners was when the Employers' Liability Act was passed in 1880. The last Workmen's Compensation Act was passed in 1906.

The similar laws in Massachusetts and other American States were modelled on these laws, and are so well known to all physicians that their provisions need not detain us at this time.

The English Parliament in 1911 enacted the National Insurance Act. This law is compulsory. The funds are derived seven-ninths from the employers and the beneficiaries, if they are men, and three-fourths if the beneficiaries are women. The balance is derived from moneys raised by taxation. The individuals who are thus compulsorily insured comprise all "employed" persons, British or alien, from 16 to 70 years of age. All other persons engaged in some regular occupation, and who are wholly or mainly dependent for their livelihood on the earnings derived from that occupation, can voluntarily insure under the Act, provided their total income from all sources does not exceed 160 pounds a year. It is also provided that persons who have previously been "employed" and insured for five years or more, may, subsequent to said employment, volun-



tarily be insured without limitation as to income.

The medical benefits were medical attendance and treatment, medicine, medical and surgical appliances, treatment in sanatoria for tuberculosis, and maternity benefits.

When the law was first proposed it was planned that the Government should organize associations to administer the act by localities, trades, industries and industrial organizations. This, of course, raised a great protest from the Friendly Societies, which ended in the Government practically accepting the existing societies as the agents for the administration of the law, the Government reserving only the right to organize such associations as might be necessary where Friendly Societies did not exist, or where the insured preferred not to join them.

The medical profession was very much agitated by the proposition, and the British Medical Association came almost to the point of threatening a general strike unless the remuneration was made satisfactory to them.

The terms first proposed by the introducers of the law were 4s. per year per capita. The Cabinet officer having the matter in charge said that the Friendly Societies paid from 2s. 6d. up. The highest, by the way, was the Postal Employees Association, which paid 8s.—two dollars a year for all medical care and medicines.

Finally, the British Medical Association was pacified by a per capita payment of 6s. 6d. The sixpence was supposed to cover the cost of medicines.

Another complaint of the medical men against the proposed act was that the law contemplated the continuance of the old and vicious contract system, which enabled the societies to contract with one or a few medical men, whom they could discharge if they did not conduct their medical practice in such a manner as to be advantageous to the funds of the society. This point was fought bitterly both by the profession and the Friendly Societies, and the final result was the so-called "panel" system, whereby any respectable physician could signify his willingness to serve on the panel, the insured person to be free to select from the panel the physician he preferred. The physician was to receive from the societies

the 4s. and 6d. of all those who selected him for that year.

In 1914 there were insured under the National Insurance Act in England 13,643,000 persons, and in May of that year there were 16,000 physicians on the "panel." About half of these gentlemen had not more than 500 persons on their list; 30% had from 500 to 1000 persons; 16% had from 1000 to 2000 persons, and 4% had more than 2000 persons. It must have been one of these latter gentlemen to whom a medical man in Oxford alluded when I asked him in 1912 how the law was working. "Oh well!" he said, "some of the men do pretty well. A friend of mine over in Wales sometimes sees 80 patients in his surgery of an evening." The total cost of all the medical benefits paid for under the act was 5,616,000 pounds in 1914.

Compulsory health insurance was, however, first instituted in that land of compulsion—Germany. The first law was passed in 1884, and included miners and others engaged in dangerous occupations, but the scope has been broadened from time to time, until a bill that was passed just before the opening of the present war covered all manual workers, foremen, commercial employees, domestic servants, agricultural laborers and government employees. Other than employed individuals, with the same income, can join the societies. The upper limit of wages was raised by this bill to \$625. In 1885, 10% of the population were in these societies, which number was increased gradually, until, in 1910, they contained 22% of the population, to which it was estimated the last amendment to the bill would add another million people.

Previous to the institution of compulsory health insurance in Germany there had existed, as in England, Mutual Aid Societies which had, as one of their principal benefits, medical aid. Indeed, they had existed in Germany for a much longer period of time than in England, and they were utilized to some extent under the Health Insurance Act, but the bulk of the beneficiaries were organized into new society groups arranged according to occupation, and all workers were compelled to join a particular society, in accordance with their employment.

The doctors complain that most of the members of these societies take very little part in their government, and that the management falls too often into the hands of the political

group called "social democrats." The direct expenses are borne by the employers and wage-earners, although the Government spends considerable money in general oversight and management.

The services of a physician are provided in accordance with the regulations established by each fund; the usual plan is for the society to make contracts with a number of physicians, who give their services in return for an annual sum, fixed in advance, or for a specified sum per case, also fixed in advance. In no case is the charge fixed on the number of visits or number of prescriptions. Some of the societies, in order to secure low rates of fees from the physicians, provide only the services of a limited number of physicians. The competition among the physicians to secure the position of medical officer in such cases has resulted in reducing the cost of the service to the funds to a very low level, and the fees have often been so small as to produce vigorous protests from the medical profession. This protest has resulted in numerous "doctor strikes," in which the physicians have refused to work for these societies, and the strikes in some places have been so strenuous that the physicians not only refused to act for the societies, but also even to treat as a private patient any individual insured in them.

I have found allusions to 1022 of these strikes, of which 921 were decided in favor of the physicians, 11 in favor of the societies, and the other 90 were pending at the time of the compilation.

Some of the societies make contracts with a large number of physicians, and the insured person is allowed to select the physician he wishes to attend him.

This comparatively free choice of a physician has generally been the result of a desperate struggle between the societies and physicians of that particular locality. The most notable example of this arrangement is in Leipsic, where the society has contracts with some 400 physicians,—the list includes many specialists in all branches of medicine, including dentistry. The strike to obtain this condition was very bitterly fought. It took place in 1904. The demands of the physicians were an increase of fees to \$1.00 per member without dependents, and \$3.00 per member with dependents,—little enough surely,—a free choice of physician, and that agreements with the individual physician

should not be terminable at the will of the society.

The list of the demands of a labor union strike in this country often covers practically the same demands.

The physicians terminated their service on April 1, 1904. They were loyally supported by practically all the other physicians in Leipsic and the neighborhood. The University medical professors and teachers refused to treat society patients in the University clinics.

The society fought back by importing physicians, to whom they guaranteed an income of \$1500 a year. They established three consultation centers under the charge of whole-time medical officers.

The physicians took steps to discourage doctors from entering the service, and of 75 who agreed to come but 62 came.

The supervisory authorities were petitioned to intervene and compel the society to provide adequate medical service. The authority decided that at least 112 physicians were necessary for the proper treatment of the members. The society was unable to fulfil the requirement, and the much-quoted present arrangement was agreed upon.

At Cologne there was a similar contest, in which the society was victorious, and at the time of my latest information it had in its employ 70 or 80 physicians, including specialists—all except about 15 of whom had been imported by the society. Some of them were doctors that had previously been employed by the Leipsic society in its struggle with the local physicians, of which I have spoken. Three hundred physicians of Cologne refused to serve the societies. These gentlemen belong to the "Leipziger Verband," which is an association of 23,800 physicians, 95% of the profession in Germany, who have organized themselves under that name into what is frankly a trade union. The details of the methods of paying the physicians by the societies varies widely, but it is an interesting fact that in some instances the local organization of the physicians receives the total amount paid by the societies for medical service, and divides it among the practitioners in accordance with the amount of service they have given.

The average amount paid by the societies in Germany for medical service in 1910 was \$1.37 per person per annum.

These insurance societies in Germany also

furnish orthopedic appliances, false teeth, false eyes, spectacles, etc. They pay for the care of their members in hospitals and institutions, often less than the cost to those much-imposed-upon organizations.

The law allows and some of these societies have already established hospitals, convalescent homes, sanatoria, etc., of their own.

The enactment of laws for compulsory health insurance has spread rapidly over Europe. Between 1884 and 1913 the following countries had established such systems: Germany, Austria, Hungary, Luxemburg, Norway, Servia, Great Britain, Russia, Roumania, and the Netherlands, and from 30 to 33% of their population have been withdrawn from the domain of private practice.

Compulsory health insurance for certain groups of wage-earners has been adopted by Belgium, Italy, France and Spain, while laws for subsidized voluntary health insurance, covering a large proportion of the population, exist in Sweden, Denmark, Belgium and Switzerland.

No American State has to my knowledge enacted such a law, although in Massachusetts such action was strongly advocated by Governor McCall.

Massachusetts, in 1917, appointed a special Commission to consider the subject, which made its report to the Legislature this year. It did not advise the adoption of compulsory health insurance at the present time, but it did advise the enactment of three laws which are interesting from the point of view of this discussion.

The first recommendation was that a sum of money be appropriated by the General Court to be expended by the trustees of the General Insurance Guarantee Fund for the purpose of further encouraging and promoting the organization of mutual benefit associations among the employees in industrial plants in Massachusetts, in order to afford them an opportunity to insure themselves against sickness and disability, at their option. This law is on its passage through the Legislature at this writing.

The formation and successful operation of such associations would be the first step towards compulsory health insurance, for the history of governments will show that whenever an association of philanthropic people, or an association for financial gain, has broken the

ground in a new direction in supplying a need of the community, the government will first regulate, and eventually step in and take over the work, to the practical exclusion of private effort. This has been the result in education, water supply, postal service, hospitals, and transportation, in many countries, and that the tendency is still active is shown in the agitation in this country that the Government take over the telegraph and telephone lines and public utilities.

The Commission on Social Insurance thus not only looks forward to compulsory health insurance, but advocates a still more direct assumption of the medical care of the community in another law which it proposes: An act entitled to provide free medical treatment for school children, which provides that such medical and surgical care shall consist of medical diagnosis and the medical and surgical treatment of the eyes, ears, noses, teeth, throats, lungs, posture and nervous systems of the pupils, the cost to be apportioned between the cities and towns and the Commonwealth, in such proportions as the General Court shall determine.

If the General Court should pass such a law, it is evident that in school children, with the single exception of the heart, private practice would be limited to the disorders of such organs as nature has placed below the diaphragm.

The third recommendation of this Commission was that the State Department of Health might provide laboratory and x-ray equipment for the out-patient departments of hospitals and dispensaries, under certain limitations, but specifies that the control of and the regulations in regard to the use of these appliances should remain in the hands of the authorities.

Those of my auditors who have patiently followed thus far, have seen a steady and purposeful extension of public service in medicine going on in this country and in Europe for a century. A social movement in a service so vital to the community, continued for so long, is, without doubt, destined to continue. When 30% of the community receive medical treatment free, or for a very small sum, there will undoubtedly arise a demand for the extension of the same system, or some modification of it, to the entire population. An extension of such service, with a demand by the people for medical care and treatment at a minimum cost, would result in medicine becoming more and

more a function of the State. In fact, the State already demands of every physician much service, in the way of notification of births, deaths, contagious diseases, venereal diseases, and cocaine and morphine addicts, and most of this service is now required in America without pay, although in England the physician is allowed 2s. 6d. for each notification filed.

The logical result of such a situation must be that all medical men will eventually become government officials.

That medical men are destined to become government employees may seem a prophecy, the fulfilment of which is far away in the future, but there are already portents in the sky. In England, under the stress of war, there has been a relocation of medical men in civil practice so that all districts may be served. In New Zealand, that laboratory for the working out of all sorts of socialistic experiments, the medical men themselves have asked the Government that the country be divided into districts, that a physician be assigned to each district, and that the Government guarantee the medical practitioners a certain minimum, but a living income; and I have, this spring, read in a newspaper despatch that the Prime Minister of England, Mr. Lloyd George, replied to a visiting delegation that after the war he would be willing to consider the "nationalization of medicine."

Government official salaries to employees are now, and always have been, regulated to an amount that is barely sufficient suitably to maintain the recipients in their station in life without the ability to accumulate savings for old age, which is, no doubt, the reason that there has arisen in Massachusetts, as elsewhere, a persistent demand for pensions upon retirement for teachers, firemen, policemen, clerks, and all classes of public employees.

When the great bulk of medical practitioners become comparatively poorly paid government officials, the great cost of a medical education, as compared with other professions, will bring a new factor into this problem.

The broadening of the field in medicine in the last quarter of a century has added to the expenditure, both of time and money, which is required of the student in medicine, as compared with other professions.

Many States now require that the physician to be licensed to practise medicine shall have

devoted six years to study, after leaving the high school, before he receives his medical degree, viz., two years of college and four in the medical school. That this requirement will soon be universal is assured, and to this there is no doubt that another year in a hospital internship, or its equivalent, will soon be added.

This is nearly twice the time required in other professions.

In law, in this State the student may get his degree in three years from the high school. This is true in most divinity schools. University schools of business administration often admit from the high school to a two or three years' course.

Architects, engineers and chemists receive their degrees from the Massachusetts Institute of Technology in four years from the high school.

In the actual expenditure of money for tuition, of all professions, medicine demands the highest fee.

At Harvard, in the Law School, Graduate School, School of Business Administration, etc., the fee is \$150, but in the Dental School it is \$200, and in the Medical School proper it is \$225, with a matriculation fee and numerous laboratory fees in addition.

These higher fees for medical tuition are fully justified. The cost of present-day medical education is appalling to the smaller universities of the country.

To cite the Harvard Medical School: The cost to the University of maintaining its Medical School last year was \$494,115.95. The School had 357 students, which was, roughly, \$1385 per student.

It is true that the School gave instruction in certain courses to 94 dental students, and to six students studying for the degree of Doctor of Public Health, but as the Dental School paid the Medical School only \$14,000 for their instruction, that fact did not very materially affect the cost per student to the Medical School.

The amount of time required, the cost of living during the student period, as well as the necessary tuition fees, are likely to increase in the future as they have already increased in the last generation, or longer; and if the rewards for the student in his lifelong practice are, by converting the practice of medicine into a governmental occupation, to be very moderate, will not the attractiveness of medicine as a



means of livelihood diminish, and will not the parents be apt to decide that a medical education is a poor investment of so much capital?

It would seem that such must be the natural result, and that the number of young men entering the profession would fall far short of the number necessary to care for the community.

If this should prove to be a correct estimate of the situation which would arise, I see but one solution of the problem, and that is, the Government will have to undertake the entire expense of the education of medical men, as it now does that of army and navy officers at West Point and Annapolis; pay them during their working days, and give them sufficient pensions after retirement to support them in old age. Nor is this solution as radical as it might seem at first thought. The Commonwealth of Massachusetts at the present time furnishes a free education to the members of one great profession, and does so for the same reasons that, in my opinion, will force the State to assume the cost of educating its medical men. I refer to the public school teachers, who are educated by the State without cost for tuition, books, etc., and with a nominal payment for board and rooms in our normal schools.

There will, of course, always be private practitioners of medicine, for men will arise in the ranks of the profession of such preëminent reputation and skill that people will always be willing to pay them abundantly for their advice and treatment.

These men, even though educated at government expense and assured of a livelihood, will resign from the public service, as great engineers, educated at West Point, leave the Army for higher remuneration, as directors of great works of civil construction, and as naval constructors leave the Navy to accept much higher salaries from rich ship-building corporations.

There will always exist in the community a group of well-to-do people, who will prefer to have free choice of their medical adviser, just as at the present time there is a considerable group of people who prefer to send their children to private schools, and, in my judgment, the group of people exclusively employing private medical practitioners in the future will prove to be about as large a proportion of the

entire community as the group which at the present time send their children to private schools.

This picture that I have drawn of the conditions of medical practice in the future is, in my opinion, a logical projection into the future of the lines of change in the methods of medical practice which have actually been adopted by the community and the profession in the last hundred years. These changes have been the result of an awakening of the public conscience as to the right of all citizens to have proper medical advice and attendance; to a constant tendency of the Government to regulate, control, and, in the end, supply all public service; to the fact that medical knowledge has become so broadened that it is impossible for any one man to be expert in all its branches, and thus has led the people to regard medical service as a service that no one man can fulfil, with the consequent loss of the sense of friendly protection and personal care which made the patient look upon his physician as a wise family friend.

The changes also have been largely due to the great aggregation of people in large commercial or manufacturing cities, where individual personal effort for the aid of one's neighbors seemed so inefficient that organized corporate effort appeared to be the only effective way in which to meet the problem, with the result that socialistic and impersonal ideals have usurped the places of the more personal and friendly ones of our forefathers.

None of these causes of change are likely to diminish as time goes on, therefore organized, systematized, efficient medical service is likely to be developed—with, alas! a little less of the personal human element in it.

The community, in its governmental, commercial, social and individual units, will, in the future, as it has in the past, need medical advice, and the learned men who give this advice, must be educated and supported by those who benefit by their skill, but the methods, both of education and payment, will not be those of the present day.

Physicians in the future will be just as eager, and perhaps even more so, to prevent disease and alleviate suffering, but that the conditions under which they do their work will change, radically change, seems inevitable.

**Massachusetts Anti-Tuberculosis League.****FOURTH ANNUAL MEETING, BOSTON,  
APRIL 11, 1918.****INTRODUCTORY REMARKS BY THE PRESIDENT.**

BY VINCENT Y. BOWDITCH, M.D., BOSTON.

OUR present meeting is held after a year of the great stress of war, with our minds and hearts fixed upon matters far from the ordinary. The ranks of our active workers have been largely reduced. Not only have our vice-president, Dr. Roger I. Lee, and our treasurer, Mr. Arthur Drinkwater, been called to active military duties, but our Executive Secretary, Mr. Seymour H. Stone, to whom the League owes so much of its success, has patriotically directed his energies for an indefinite period towards special war work. This has, necessarily, thrown greater responsibility upon those who are left behind,—a burden, however, which they have gladly shouldered in their endeavor not only to keep up the standards of our League, but thus indirectly to help our country in the present great crisis in its history.

In spite of these hindrances to the best work, I think it can be said that we have had a year of usefulness, in which we have done more than merely "mark time," and have succeeded in keeping before the public the necessity of never-ceasing activity in fighting tuberculosis.

In the early autumn it was suggested by the Executive Secretary of the National Tuberculosis Association, Dr. Charles J. Hatfield, that our League should institute a series of lectures to be given by specialists in tuberculosis to the military medical staffs at the cantonments and camps in Massachusetts. Following this suggestion, under the auspices of the League, several specialists of national repute have visited Camp Devens and have given interesting lectures upon various phases of the tuberculosis question. The League is especially indebted to Dr. E. R. Baldwin of Saranac Lake; Dr. G. Benjamin White of Otisville, N. Y.; Dr. A. K. Krause of Johns Hopkins Hospital, Baltimore; Dr. Donald B. Armstrong of the Community Health Demonstration at Framingham, who kindly took the place of Dr. David R. Lyman of Connecticut, during the latter's service abroad, and Dr. Charles L. Minor of Asheville, N. C., who had kindly consented to appear, but at the last was prevented by illness from so doing.

These lectures were given at the Base Hospital, and were attended by large numbers of the medical men stationed at Camp Devens. An attempt was made to have instructive lectures given to the soldiers themselves in the Y. M. C. A. halls, but the plan was later placed in the hands of the military medical authorities at the cantonment as being a better method of reaching the soldiers than through the medium of "talks" by civilian physicians. By personal observation, when accompanying these gentlemen to Camp Devens, I became convinced that the lectures as given were productive of much interest and benefit to the medical men. However, it seemed much wiser to leave the instruction of the soldiers themselves to the military medical authorities,—the psychological effect of a uniform upon the minds of young listeners being very marked and much more productive of respectful attention than is often the case when the ordinary civilian tries to hold their interest in these matters.

Another feature of war work touched upon during the year was a series of letters sent to the various anti-tuberculosis associations throughout our State, urging upon them the importance of following up cases which had been rejected by recruit examiners on account of suspected or confirmed tuberculosis. The importance of having this often difficult task done with care and tact was emphasized, the object being to record, as far as possible, these rejected cases; to see that they were properly classified at the office of our State Department of Health, and steps taken for proper treatment. How far this suggestion has met with response I am not in a position yet to say, but the large number of cases recorded at the health department warrants the belief that our members have been helpful throughout the State in bringing this about.

In this connection it seems well to speak of the ever-growing importance of the work now presided over by Miss Bernice M. Billings, to whom is entrusted the after-care of the tuberculous patients discharged from our state sanatoria. The members of our League can do no better work than by bringing this before the communities in which they live. Nurses are greatly needed in the rural districts, and proper means of conveyance for them are essential. Many a case is now neglected because it is impossible for any one nurse to reach places which are remote from the centers of popula-

tion. A small Ford car for the use of nurses in these rural districts would greatly enhance the quantity and quality of the work done by them. Two or three of the larger districts, through private sources, have already obtained such cars, with great help to the amount and quality of service rendered, as well as to the physical well-being of the nurses themselves. I cannot urge too strongly upon our associations throughout the State the necessity for developing this work. It must be done for the present, at any rate, by private subscription, even if the State later recognizes its importance and makes proper provision for it. In every community there are people who, when properly approached, will give money for such purposes.

The war is steadily and surely making us realize how the business of looking after cases of tuberculosis must grow in the immediate future, and an increased energy on the part of all our state local associations is absolutely essential. The necessity of financial aid in the rural districts and elsewhere can be made to reach the public by notices placed in all local newspapers in the State. By such means we may hope to increase the efficiency of the work of our League during the coming year.

An effort was made during the last season, through the suggestion of one of our most active workers, Mrs. Mabel Greeley Smith, of Cambridge, to have the secretaries or other active members of local associations send in to the central office the general methods of procedure in each association, so that a comparison could be made which would be helpful to all. I must confess to disappointment in the lack of response thus far to this appeal,—only two or three replies to letters having been received during the winter months as to methods of work. It is to be hoped that during the coming year some plan can be formed by which a comparison of methods may be established which will be productive of good to the whole League.

It is fitting that attention should be especially called at this meeting to one very important feature of anti-tuberculosis work in Massachusetts, which marks, in my opinion, a decided advance in our methods, and will, when developed, be productive of good to the patient, not only in a physical, but also in an economic sense.

I refer to the recently completed "Work-

shop and Recreation Building" established at Rutland, Massachusetts, under the auspices of the Rutland Private Sanatorium Association, for the benefit of patients who are obliged to live in Rutland, either at private sanatoria, boarding houses, or in their own homes. In this building, opened last autumn, opportunity is given not only for recreation, so essential for people who are exiled from their homes, but, when necessary, for earning money by weaving, basket- and pottery-making. Of the beneficial effect, both mental and physical, of such methods, I hardly need to speak, but this work should be widely known and encouraged by all philanthropic people and by those who are especially interested in the welfare of the tuberculous and the anti-tuberculosis movement. "Seeing is believing," and I wish to take this opportunity of urging upon everyone the necessity of visiting this institution in Rutland, the formation of which is largely due to the courage, persistency and foresight of the physicians who are in charge of private sanatoria in Rutland, and their laymen associates; an inspiration to those who visit it. The place is one which should grow to large dimensions and make Rutland the Saranac Lake of Massachusetts, where those who are afflicted can go with a prospect not only of regaining their health, but also of remaining there in suitable homes and with means of diversion and occupation which are necessary for their comfort and welfare. It should be stated, perhaps, that this project has nothing whatever to do with the state institution, but has been started and aided by private subscriptions only.

Another important phase of anti-tuberculosis work is the necessity of accommodations for people of moderate means who cannot afford to go to expensive sanatoria and who shrink from the publicity of state sanatoria. This need is never more apparent than now. So far as I know, the Sharon Sanatorium, now beginning its twenty-seventh year, is the only one in New England where, for \$10.00 a week, women of refinement, but of limited means, can obtain the same sort of accommodations and medical attention as are found in more expensive sanatoria; and it is continually brought to my attention what a lamentable lack there is of small institutions for this special type of patient. They involve, of course, dependence upon private sources largely for their mainte-

nance, the small price asked being utterly inadequate to meet expenses. Similar institutions to that at Sharon are needed not only for men and women of the civilian class but, in consequence of the war, for many previously unknown and unsuspected cases of tuberculosis among the military men, for whom this class of sanatoria will be more than ever necessary.

The military authorities at Washington are already planning sanatoria and hospitals for tuberculous soldiers, where large numbers can be taken care of, but in the near future there will be military and naval commissioned and non-commissioned officers of limited means who will prefer the privacy of institutions not under governmental control. For such, the one recently incorporated by a number of well-known physicians and laymen, and about to be built in close proximity to the Rutland Workshop and Recreation Building, is a striking example of what is needed. Already the project has received the generous support and endorsement of a number of prominent Massachusetts physicians and laymen; of the President and Executive Secretary of the National Tuberculosis Association and the President of the Framingham Health Community Association. Ground has been broken for the buildings, and with the steadily growing sums of money subscribed, the managers hope to see, before many months, the completion of a model institution which *shall not be used for profit*, but in which a sliding scale of prices can be asked sufficient to meet expenses; any excess of income to be devoted to the increased scientific efficiency of the sanatorium. The sanatorium will be under the superintendence of Dr. Bayard T. Crane, of Rutland, whose long experience and indefatigable energy in tuberculosis work are well known.

Military and naval men who have developed tuberculosis are already applying for places in the town of Rutland where the number of proper accommodations for such people is quite inadequate.

With such endorsements I feel that private philanthropy can find no better outlet than in supporting this admirable and much-to-be-desired scheme. Its hoped-for consummation in the comparatively near future will be another step towards making Rutland the Mecca of New England, towards which tuberculous patients will turn their faces more and more. It will be another milestone in the steady prog-

ress Massachusetts has made in anti-tuberculosis work in the last quarter of a century.

Lack of time prevents me from discussing many problems of interest in our work, but I wish now to touch upon one subject of importance which, in the study of tuberculosis, comes under the head of what we call "preventive measures"; viz., open-air schools. With our knowledge, obtained by long experience, it would seem to be a foregone conclusion that fresh air pushed to an extreme degree is not only beneficial in adult life to the pronounced tuberculous patient, but quite as much so to those who show symptoms of lowered vitality in child life when the groundwork of subsequent trouble may be present. In spite of the fact that, for some not well-explained reasons, a few open-air schools both here and elsewhere have been closed after trial, we find that the opinion of observers of large experience, and whose judgment can be relied on, is unhesitatingly and enthusiastically in favor of such schools. Two of those best known in our own State are situated at the Westfield Sanatorium and at the Sassaquin Sanatorium in New Bedford. In a recent correspondence with Dr. Henry Chadwick of Westfield, and with Rev. William B. Geoghegan of New Bedford, I find them both warmly in favor of such schools as a result of their experience. Although Dr. Chadwick is apparently conservative as to the wisdom of subjecting children to the severest cold of winter, yet the system, as used at Westfield, allows the freest circulation of outside air in the rooms by opened transoms, with artificial heat to temper the cold, thus enabling the children to use their hands and bodies with greater ease and comfort. In New Bedford, the success of the school at the Sanatorium is such that Mr. Geoghegan, one of our most active members, is a thorough believer in establishing open-air schools in the city itself where all children who show lack of vital power shall be placed. My own opinion, based on an experience of over twenty-seven years with sanatorium treatment, has long since convinced me that such methods should be established far and wide. At the Sharon Sanatorium, hitherto used for women only, through the generosity of friends, a new Children's Pavilion is about to be opened as a combined sanatorium and school for children between six and fourteen years of age, who are either showing a lack of vitality or who have



already symptoms of glandular or early pulmonary tuberculosis requiring close supervision and treatment. In spite of occasional attempts to prove by comparative statistics that children do no better under such conditions than in so-called "well-ventilated schools," the atmosphere of which is often atrocious, concrete instances of facts proving the contrary are more convincing than columns of figures. In support of this, I should like, in closing, to quote from a letter received last year from a former graduate of the Sharon Sanatorium, who, after a brave fight for three years, left Sharon seventeen years ago to resume her place as teacher in a public school in one of our large Massachusetts cities. She wrote: "You will be glad to hear that in the last fifteen years I have scarcely lost a day from my teaching, and, more than this, I always impress upon my children the value of fresh air as taught me at Sharon. This winter I kept my schoolroom windows open all the time and not one of my scholars was kept at home with a 'cold,' as against epidemics which occurred in most of the schools in my city."

Evidence like this, which is not exceptional, teaches one to be very chary of accepting theoretical arguments *pro* and *con* which are not based upon practical knowledge and experience.

I trust that these opinions may be of use to our League in urging the adoption of similar methods throughout our State and elsewhere.

In conclusion, I wish to call the attention not only of our own members, but of the public generally, to the great work of the National Tuberculosis Association and to the necessity of generous support from the citizens of the United States. The recent call for aid should meet with generous response on every side. By becoming a member of the National Association, for \$5.00 a year, one may feel that he is doing his small share in bringing under control the disease which still causes the largest mortality list in the world.

#### ADEQUATE COMMUNITY ORGANIZATION FOR HEALTH EDUCATIONAL WORK.

By MARY A. ABEL, FRAMINGHAM, MASS.,  
Educational Assistant, Framingham Community Health and Tuberculosis Demonstration.

THE writer of an editorial in a recent publication said in regard to the repeated use of the

word "intensive," that, after all, it simply meant doing things "well"; that in the effort to use the newer word more often the force of the other simpler and older word was lost sight of. We are apt to think that we are doing things better than usual or in a new way when they are merely being done well.

It is this well-done method which every anti-tuberculosis organization in the country seeks to see carried out in its own community,—a method which will, in its educational work, reach every man, woman and child of all stations. Nor has the program rendered the highest usefulness to the community until it has, acting as a dragnet, turned up every possible means of educating the public.

A thorough piece of organization for the purpose of educating the public in the different phases of anti-tuberculosis work will use every available grouping of society, every agency, every line and channel in spreading the gospel. There will be found a distinct channel for every group of individuals through which they can be reached and, failing every other means, personal evangelism comes into play. This is a slow process, however, though certainly the most valuable; but it is difficult to imagine a man, woman or child who has not in some wise a community connection. Those homes, for instance, not represented in the school census will have connections with organized societies, those not in industry have other contacts, and so on.

Upon sensing the personality of any community it will be found that every village, town or city has certain agencies, more or less perfectly organized, available for publicity purposes. The schools, churches, newspapers; organizations of all kinds—including social, religious, fraternal, education, business, and philanthropic; the theatres, billboards, business houses, public buildings and factories are some of the more usual ones, and almost every town will certainly yield some or all of these. These should come in for their share, and no scheme is complete without having tried out fully their resources.

It seems to me we do not realize the incompleteness of our work until we have made a complete catalogue of the many avenues at our command. Because of personal experience right here I venture to say that the average worker, no matter how well she knows her community, will be appalled at the amount of or-

ganized material there is ready for her use. In a survey of the organizations for women and girls exclusively in Framingham we were amazed to find they numbered sixty. Think of the valuable material already amassed and of the possibilities for work with that group alone!

That brings us to one of the first and most important steps in any educational scheme,—the tabulating of data concerning such organizations as may be used in educational propaganda. It is difficult to estimate the value of such information to a worker. In Framingham we prepared an outline questionnaire called "Know Your Own Town," dividing it into chapters dealing with the history, government and finance, housing, health, recreation, industry, immigrants, child welfare, delinquency, charities and organizations of the town. This was turned over to the principal of the high school, who, in turn, divided it among the various classes in the school according to their particular study. Thus to the class in civics was given the chapter on history and government, to the science class that on health, and to the physical culture classes the subject of recreation, etc.

The subject of health was accented, of course, and this piece of work has introduced us and our scheme for health to practically every high-school student in town. In addition to the knowledge every student is going to get out of doing this piece of investigation, when published the pamphlet should form a valuable index for the citizen who wishes to know his or her own town.

That was our first entrée into the schools, followed by the second piece of educational work,—that of forming Health Crusader Clubs in every grammar grade of all the schools, beginning with the fourth grade. To you who have not initiated the movement in your town, I wish to say that, in my opinion, a very valuable opportunity is being neglected. The "playing a game" spirit in the Crusader organization makes it attractive to the child; all the time he is forming those very valuable health habits which will remain with him. The teaching of simple good health and hygiene habits to children is one of the most vital things in all anti-tuberculosis work.

The eight health chores the child agrees to do every day are such simple things as brushing his teeth, drinking a certain number of glasses

of water, washing his hands before every meal, being in bed a required number of hours and keeping his windows open in his bedroom. He is given credits on his score card for every chore he performs, and there are honors in titles and pins, which act as incentives.

Can we not imagine the vast value to the anti-tuberculosis worker in having the children of a community trained and educated in matters of health. Since tuberculosis in its incipency is largely a disease of young life, the emphasis on healthy habits must certainly be placed there. The work is made easy and more pleasant than other lines of work by the very reason of the plasticity of the material with which we are working. You who have had difficulty in persuading, begging, bribing or teaching an adult patient the use of a sputum cup will appreciate the difference between that labor and the joyful work with the children. Again and again, teachers in the grade schools tell me of children who try to anticipate the time for marking their chore cards. They are so eager to check up in the morning the score for the day previous that they ask to have that put first in the day's schedule.

Meanwhile who shall say the children are not educating the elders in their homes? One mother came to me with an anxious look on her face and said, "Is it necessary for my boy to drink four glasses of water *every day*? He is trying so hard to keep the chore card, but I am afraid all that water will give him floating kidney." She seemed really relieved to know it probably wouldn't.

While the Crusader organization is invaluable, there are other educational measures needed among the children. Some of the Health Plays published by the National Association for the Study and Prevention of Tuberculosis are excellent and are not to be neglected in work with children. The teachers are glad to have these, since very little is required in the way of scenery and make-up. A list and description of these can be secured from the National Association office. If used in connection with the Crusaders, it serves to fasten the children's interest.

Some pertinent findings in our Framingham experience have taught us that continuous publicity, through the clubs and lodges, the newspapers, the churches and the factories, is the policy we must pursue. We should see to it that every club and organization have a member

appointed regularly to give our news at the meetings. We ought to get our matter to the "current events committee" in every club, so that it will have place and standing with other news of importance. Newspaper material should be regular and not spasmodic. Generally, the local newspaper will be glad to furnish a specified space weekly if not daily. The churches furnish valuable material by the very personnel of the membership. The co-operation secured from them on Tuberculosis Sunday shows where they stand in regard to helping on the big job of getting over to the public the message that tuberculosis is preventable and unnecessary.

In Framingham we are ready to issue a series of ten posters of large size, printed in attractive colors for distribution in the factories. These will be distributed in serial form and each one will carry some eye-arresting phrase. The worker in industry must not be neglected, and the educative force of seeing every time he enters or leaves the shop some line about his health may do more for him than talks or books could ever do.

The theatre is a potent force, although it cannot be used as often as other agencies, especially in tuberculosis work. When it can be secured, a slide run in occasionally at the moving pictures houses will pay for itself many times over.

In Framingham we have developed a very thorough organization of the community for educational work with the Demonstration by means of lay committees which cover the entire town. It has been our aim in this to keep the machinery as simple as possible, so we have divided the town into seven districts which include our rural population. Our plan has been to ask some one man or woman on each street to represent a street for the Demonstration in such matters as birth and sickness reporting and general educational work. It can be readily seen how in this manner we can get in touch with every section and street of the town and come to know the people as we could not in any other way. By knowing the committee members personally and intimately we feel assured of a sympathetic coöperation. Much time has been put into educating the committee member beforehand and in assuring ourselves that she or he really understands the purpose of the Demonstration, and the big part they play in it. The committees number from twenty-five to fifty, according

to the population of that district, and there is one chairman who represents the entire district in the Advisory Council of the Demonstration. The membership is mainly composed of busy people, so there is no intention of having regular or frequent meetings. The big fact in connection with the plan is to know that here we have an interested, intelligently informed group of people who will assist the Demonstration at any time as the need for special work comes up.

The personnel of the committees is interesting, and much time has been spent in their selection. The appointing of an unpopular resident on a street would be met with disastrous results, and the aims of the work defeated. This is especially true in those sections populated by foreigners, such as Italians. Sometimes many calls will be made on a given street before the right person can be found, but this loss of time is probably justified in the end. Running through the file of these names under the first letter of the alphabet we find listed a most diversified membership: Here is a nurse, an engineer in a foundry, a Normal School senior, a retired business man, a busy mother, a young Jewish immigrant, a clerk, a street car motorman, etc.

As each district committee becomes familiar with its section's particular problems, they will interpret them to us. In the first district organized the committee felt that the need for cooking demonstrations was greater than anything else, so accordingly the Domestic Science Department of the Normal School located at Framingham, was called upon for assistance and have been doing group work in the selection and preparation of food. Another district feels the need for home nursing and first-aid courses, and they will be taken up by the physicians and nurses from the Demonstration staff. In another district the work will probably be infant welfare work, and so on, as the various sections express themselves and their needs to us.

In Framingham, since the Demonstration is more or less temporary and its accomplishments, therefore, somewhat limited, we feel that one of the most important results, and one where we will make our biggest impress on the town, will be through the use of this intensive method of organization. If we can leave behind, as one of the results of the Demonstration, a community thoroughly organized to fight tuberculosis and

intelligently alive to the necessity for keeping awake public consciousness, we will have given Framingham the very highest and best service. If we can have intelligent citizens to fight for the eradication of tuberculosis, we need have no fear for the future fight against the disease.

#### RELATIVE VALUES IN ANTI-TUBERCULOSIS WORK.

BY PROFESSOR C. M. HILLIARD, BOSTON,  
*Associate Professor of Biology and Public Health,  
Simmons College.*

THE tuberculosis problem is one of the most complex and confusing of all public health problems, having many aspects which appeal in their relative importance with different emphasis to workers who may be specializing in their respective fields. It seems worth while, therefore, to attempt an analysis of the salient features of the campaign for the prevention of this scourge, and to try to attribute to each factor a certain weight which will indicate its relative importance. Such a method has been applied with great success to the general problem of public health work by Dr. Charles V. Chapin, George C. Whipple, Franz Schneider, and others, and it seems quite likely that a more intensive analysis of the problem of child hygiene, infant welfare, tuberculosis, and other health problems will throw light on what our course of procedure should be in the future. There is always a strong tendency for scientific progress to outstrip the practical application, and our whole knowledge of communicable disease, and the science of prevention, is so new and is growing so rapidly that we should frequently make an inventory to see where we stand. It is this idea which I have in mind when I attempt the difficult problem of contrasting the importance of different factors in the anti-tuberculosis campaign.

Tuberculosis has been the most important cause of death amongst civilized peoples as far back as we have reliable vital statistics. For this reason it has probably received more attention from the medical and sanitary professions than any other disease. Its prophylaxis may be compared with the different stages in the development of our knowledge of communicable diseases. The infectious nature of tuberculosis was established by Villemin in 1865, almost two decades before the discovery of the tubercle bacillus by Koch. Prior to that time

the nature of the disease was shrouded in mystery, it being looked upon as an hereditary disease, or as due to peculiar and unavoidable conditions of surroundings. With the definite knowledge of its communicability and with the accompanying sanitary awakening in England, which rapidly spread to other civilized nations at this time, a new epoch in combating the disease arose. It became apparent that this disease, as others, was associated with filthy human surroundings, and the attack was made in a hit-or-miss fashion upon dirt and decomposing matter.

With the demonstration of its specific etiology (1882), a new era arose. The foci of infection were very apparently associated with human beings suffering from the disease, and the hope was raised that at last a means of eradicating the disease had been discovered by preventing the spread of the germ from these centers. But in the last decade of the 19th century emphasis was being more and more concentrated upon cure. The establishment of the first sanatorium at Saranac by Dr. Trudeau in 1885 blazed the way to this new era, and the results which were immediately forthcoming were of an exceedingly hopeful character. It was definitely demonstrated that under the treatment given at sanatoria improvement of the patient rapidly followed. Still another element was added about this time (1890) by the discovery of tuberculin, and for a time it seemed as though a specific curative treatment would solve the problem. At the opening of the present century, a new appreciation of the social aspects of the disease arose, which led to the inauguration of the personal contact of the anti-tuberculosis worker with the patient in his home. I refer to the inauguration of the public health nurse in 1904, although it is worth noting that in 1899 two medical students under the direction of Dr. Osler had done house-to-house work for the sake of educating the patient and family, and of putting the patient in contact with the proper organized social relief. (Gardner, "Public Health Nursing," p. 25.)

If we examine the death rate from tuberculosis over a long period of time and with large enough groups, the hopefulness of the measures that have been tried is not altogether inspiring. We find that tuberculosis has been on the decline as a cause of death for generations, and, as Pearson has pointed out, in England, at least, the rate of decline is less rapid



during the last thirty years than it was during the previous thirty years. The discovery of the tubercle bacillus, the inauguration of the sanatorium, and even the recognition of the social and economic nature of the disease have not brought about any general measures which result in a sharp decline at those periods. It may well be argued that none of the measures has been tried on a sufficiently extensive scale to be a true measure of the prophylactic value of any one of these methods, and that is doubtless true up to a certain point, for we find in those cities and states where intensive work has been done that the death rates show a much sharper decline than for average and large populations. We might well say the decline in tuberculosis would result in spite of all of our prophylactic measures, rather than as a result of them.

At the present time, we are confronted the world over with conditions which may well be expected to raise the prevalence and the death rate from this terrible scourge. In fact, Newsholme has pointed out that in England and Wales the death rate from pulmonary tuberculosis during 1915 and 1916 is 12% greater than in 1913. (*Lancet*, 1917, ii). Newsholme states that "The experience in this country appears to coincide with that of the continental countries engaged in the present war." We are all familiar with the appalling situation in France as indicated by Dr. Biggs' report. The same thing is already indicated in the death rates in New York City from this disease, where the rate had steadily declined from 1.81 in 1910 to 1.50 in 1916, but showed a marked increase in 1917. The first eleven months of 1916 showed 7685 deaths; for the same period 1917 there were 8092 deaths from pulmonary tuberculosis. Dr. Kerr, health officer of Newcastle-upon-Tyne, likewise indicates the trend of this disease and states "that considerable increase in the number of deaths among that section of a civil population which has been especially affected by the new conditions of life brought about by the war, namely, girls at ages between 15 and 20 years," is shown.

The total deaths from pulmonary tuberculosis are shown from the following table by Kerr:

	ESTIMATED POPULATION	DEATHS
1913 .....	271,295	326
1914 .....	271,523	375
1915 .....	278,107	380
1916 .....	272,250	407
1917 (January to June) .....	?	246

It becomes doubly imperative, then, that we should expend our energies in the present emergency in the most fruitful manner.

The prophylactic measures used to combat tuberculosis may conveniently be classified under four general headings: the prevention of infection; the cure of the disease; the predisposing factors; and public health nursing. Before we try to weight these various factors, we may well go into a consideration of each in some detail.

#### INFECTION.

The overwhelming evidence at the present time is that the tubercle bacillus is an almost ubiquitous organism in the body of man. The well-known investigations by Naegeli showed that upon necropsy at least 99% of persons harbor this microbe in their bodies by the age of 30. More recent work by Reinhardt in Switzerland demonstrated 347 out of 360 consecutive autopsies, or 96%, to be tuberculous. The von Pirquet reaction confirms in general the results that are found after death. More significant, possibly, is the early age at which infection occurs. In New York, in 1320 autopsies of children under the age of 5, 13.5 showed more or less generalized tuberculosis. According to the cutaneous test, which is generally admitted to be fairly reliable in children, from 80 to 90% seem to have contracted the disease before the 14th year. Knopf (*New York Medical Journal*, 1917, cv, p. 1181) gives the following analysis for the age at which infection occurs:

	LOWEST	HIGHEST
Under 1 year .....	1%	9%
1 to 3 years .....	9%	50%
3 to 5 years .....	27%	75%
6 to 10 years .....	34%	75%
11 to 15 years .....	12%*	94%†

\* Private patients.

† Hospital patients.

Without giving further figures which might be abundantly quoted, it becomes apparent that the problem of absolutely preventing infection during life is a vast one, and since relatively so small a number of persons acquire the disease in its active form, it likewise leads to the conclusion that infection is perhaps not the solution of the problem. An organism which is so generally distributed and seeded in the human race as this is almost as difficult to eradicate as the colon bacillus, which appears in the intestines of the newly born babe usually a few hours after birth; or mouth streptococci,

which are likewise found in the mouth very early after birth.

The mode of infection in this disease is somewhat obscure. The tubercle bacilli which infect man seem to have two primary sources: the discharges from the lungs of the tuberculous, and animals suffering from the bovine type of bacillus. As to how the organism enters the body is subject to controversy. The older theory regarding aerogenic infection has been supplemented by the ingestion theory. Doubtless, infection may occur by the direct inhalation of fresh dry, and pulverized sputum found in dust, or in sputum particles ejected during coughing and spitting, but organisms taken in this manner into the nose and throat may quite likely, instead of going directly to the lung tissue, penetrate through the tonsils, and be conveyed to their final destination via the lymphatics, or they may even be swallowed, and enter through the intestinal tract to the mesentery glands, and may be transported from there to the lungs. It seems more easy, now that we know about the scarcity of pathogenic microbes in the air and their survival here, that tubercle bacilli more commonly are taken into the body with food or upon articles that are infected with sputum. Infection by the alimentary portal has been demonstrated to be a possibility, and it may enter without leaving any trace as a primary infection. The common location of the primary infection in the apex of the lungs suggests other than the respiratory passage. Referring to the organism which comes from animal origin,—notably cows' milk,—there is no question but what its common path of invasion is through the alimentary canal. This type of disease is most common in children, and is easily preventable by the routine practice of efficient pasteurization of all milk.

The prevention of infection, then, resolves itself, first of all, into the problem of preventing the contamination of surroundings with sputum and saliva. The anti-spitting ordinances are a beginning in this line of prevention, but vastly more important is the general education of people to the importance of other means of exchanging saliva. Masses of sputum expelled to the ground or floor, even in public places, are much less liable to return to persons in fresh form than as though this material were sprayed into the atmosphere in coughing and sneezing, or were smeared by fingers

upon trolley straps, door knobs, counters, drinking cups, and eating utensils, or upon food, such as bakery products.

The danger from these latter sources is indicated by the recent study in New York City, where an intensive examination of food handlers revealed that out of 1748 persons "there were 10 cases of active tuberculosis, 12 of suspected and 3 arrested tuberculosis." The early diagnosis of cases to prevent active foci of the disease, the hospitalization of active cases, thorough disinfection of the discharges, proper instruction of both patient and attendants and exposed persons, and the exclusion of the tuberculous from employment in industries involving the handling of food, aid in preventing the spread of the disease. We emphasize these things in spite of the fact that we have indicated that to avoid infection during lifetime is rather hopeless, because we definitely understand that repeated infection and massive infection may at any time be a danger.

#### CURE.

That tuberculosis in its early stages is a disease that may be arrested, and perhaps permanently arrested, is a well-demonstrated fact. Cure, in the sense that the bacilli may be eradicated from the body, is conceded to be quite improbable. The secret to the cure of the disease is its early detection, and any measures that will encourage the early detection of the disease are not only in favor of the patient, but in favor of the public health. The encouragement of routine physical examination for school children, for adult employees, and for all persons is an anti-tuberculosis measure of first magnitude. We should discard the secrecy that surrounds this disease and should report it frankly to public health authorities, to the family, and to the patient himself, immediately the suspicion arises. To conceal the disease from the patient or from others is to deny the opportunity for cure and subsequently to endanger the public health.

With the discovery of tuberculosis in the patient, proper instruction and proper facilities for the treatment should at once be found. We are laying less and less emphasis upon the importance of climate, latitude, and altitude, and more and more upon rest, and cheerfulness, and successful nutrition of the patient. Out-door air is apparently quite as good for tuberculosis patients in New England as it is in

Colorado. The cure has a psychological element as well as physiological. The sanatorium, likewise, is not indispensable in the program for cure, although each case must be considered separately in this regard. Fishberg (1916) says: "It is shown that institutional treatment is not the only, nor the best method of caring for the majority of patients." If the case is not yet a menace to the family (with the exception of cases where the facilities cannot be devised for home treatment) they should be encouraged to remain at home. The sanatorium is for the very poor and the ignorant, primarily. Out-of-door schools, not only for recognized cases, but for all children with poor physique, should be rapidly extended. The tuberculin treatment would be included as a hopeful item by many, and with our increase in the knowledge of administering this agent it may become an important item.

#### PREDISPOSING FACTORS.

Vigorous physiologic defense is the secret in combating tuberculosis, and social and economic factors play the largest part in the maintenance of high resistance. Granting the presence of a benign and almost universal infection with tuberculosis, the occurrence of the disease in its active form, chiefly in the age period from twenty to forty, must be explained either on the basis of radical reinfection between these ages or to a flaring up of the latent lesion into an active form. The habits of life and industry at this time seem not to afford unique opportunities for further or more massive infection. At this period, however, the entrance into industry, the intense ambition to acquire position, power or money, and the increased exposure to temptation all lend to cumulative fatigue and lowered power of defense. "Chronic fatigue, whether from excessive toil or excessive amusement; disordered metabolism, whether from starvation or over-indulgence; anxiety, whether due to religious fervor, business emergencies or games of chance, all are predisposing factors."<sup>\*</sup>

The general predisposing factors of a social and economic character are so numerous that it will be useless to attempt to consider them all separately. Broadly speaking, all factors that lead to fatigue and depletion contribute to tuberculosis. We shall discuss a few predisposing factors specifically. Inheritance, both

racial and family, plays an important part. In relation to prophylaxis, however, but little can be done through heredity. In families where tuberculosis is known to be present in active form, restriction of the increase in the family might be discreetly urged through legislation and through education; and marriage between parties, one or the other being tuberculous, may be prevented.

Malnutrition, especially among children, is a most important item. We learn from a recent number of the New York City Weekly Bulletin that approximately one-eighth of all school children in the city are undernourished, or 125,000. We need only to look around us to see the perpetual demonstration of how common insufficient nutrition is in the human race, and to appreciate that a vast problem confronts us here which plays its rôle in tuberculosis. The present status of the food situation in America and throughout the world is rather discouraging from one standpoint, but from another, namely, that for the first time the public is being informed as to what constitutes an adequate diet, it is, perhaps, encouraging. At this time let us make sure that we feed our infants and our growing boys and girls well.

Alcoholism, other drug addictions, and all excesses tend towards tuberculosis.

Tuberculosis has been called an "occupational disease," and the more we learn of the relation of tuberculosis to industry the more we appreciate the truth of this. This is very hopeful because most of the industrial conditions that predispose to tuberculosis may be corrected. The trades which are most dangerous are: first, all of those which expose the worker to dust; secondly, those where bad air, excessive heat, and noxious gases occur; and, finally, the occupations where the poor posture and close confinement are common. Dr. Crumb, in analyzing the Prudential Life Insurance Company's experiences, finds that in dusty trades the death rate is from twenty to thirty per cent. higher than in non-dusty occupations for all workers. In an exhaustive study of the factors contributing to the incidence of tuberculosis in Cincinnati, Robinson and Wilson conclude that occupational hazard is one important contributory cause. The elimination of child labor, minimum wage scale, health insurance, and other sociological industrial elements are highly important.

There are certain diseases which directly pre-

<sup>\*</sup> Smith: Jour. A. M. A., lvi, pp. 77-82.

dispose to tuberculosis, which are themselves preventable. Typhoid fever is most significant in this respect. In a notable paper Dr. Woodruff has shown the parallel decline in typhoid and tuberculosis in many countries. The past histories of sanatorium inmates show that they have suffered from typhoid fever in excess of the general population. All acute or chronic diseases lower resistance and throw wide the portal to the tubercle bacillus. Pertussis, measles, and scarlet fever seem to render children particularly liable. General sanitation and disease prevention are, therefore, weapons against tuberculosis.

Housing conditions are usually included as predisposing causes. House infection in the sense that the house becomes infected and seeded with tuberculous bacilli, and that infection is contracted readily because of such conditions, probably is not important. It is, however, certainly true that tuberculosis increases in direct ratio to number of persons per room. Bad housing goes hand in hand with poverty, poor human protoplasm, ignorance, alcoholism; and tuberculosis is the result of a long sequence of conditions rather than the room or house.

Poverty itself is a predisposing cause. If we could eradicate poverty we should go a long way toward eradicating tuberculosis. We usually state hopelessly that the poor are always with us, and to combat poverty is to combat the foundations of society, and with its eradication would come the millennium. Much can be done in the way of eradicating poverty by education, the minimum wage scale, the social and health insurance, institutional aid, and brotherly love.

#### PUBLIC HEALTH NURSING AND EDUCATION.

We now come to the last of the four items which we are to discuss, and, historically, we find that it is the latest to develop. Public health nursing in relation to tuberculosis has the following objects: prevention of the spread of infection and detection of new cases; the instruction and nursing of patients at home, co-operation with agencies which may help the patient; assistance at clinics and dispensaries. We see at once that her work is very broad; that it is chiefly social and educational, ameliorating those factors which we have insisted upon before as being most important in the anti-tuberculosis work. Dr. McLaughlin has

said that "dollar for dollar the public health nurse will give more for the money than any other single agent," and this is emphatically true in tuberculosis.

Education is the keynote to the nurse's work. It is by gradual, quiet instruction that she teaches the patient how to avoid infecting the environment, and the family how to protect itself. It is through instruction rather than nursing, which is really only in the form of a demonstration, that the patient is given the proper care at home. The finding of new cases is, of course, to give the patient the benefit of early treatment and the community the opportunity to rid itself of one dangerous focus of infection. The nurse seeks to place patients and families in contact with clinics, hospitals, and sanatoria when the need arises. She helps the discharged patient to rehabilitate himself, and is on guard for recurrence of the disease. Her work in relation to the health supervision of school children is recognized as indispensable. In combating tuberculosis in rural communities, the nurse is the strategic element; in fact, the only agency which has appeared. Her services are too little appreciated and too few facilities, as adequate facilities for travel, are given her to perform efficiently her tasks. The work of the medical social service worker, the industrial nurse and the infant welfare nurse verges upon, and, in fact, is a part of the anti-tuberculosis program. We cannot lay too much emphasis upon the hopeful character of the nurse's work in the campaign for reducing the scourge.

We now approach the difficult task of assigning the relative numerical values to the different factors which we have discussed. In its entirety the tuberculosis work is rated at 14% of the total by Chapin, as 12.1% by Schneider. In the effort to get an accurate measure of the influence of any one, or any group of these factors, we have been unable to work out a mathematical system. The figures simply represent an arbitrary weight. The items obviously overlap, sometimes one measure being worthless without another, as in the detection of new cases, reporting and subsequent treatment. From the preventive viewpoint, to recognize the case early is more important than the sort of treatment rendered. The weight of a given factor or agency has been considered from its response to corrective measures as well as the number of cases of the disease involved. Thus,



racial inheritance may play a large part; poverty is the very background for tuberculosis, and yet neither responds easily to applied prophylactic measures. Dusty trades, though not involving any large proportion of all cases of tuberculosis, are largely preventable. The nurse's work is a corollary of most of the other items listed, and her influence would be nullified in the absence of the clinic, the "preventorium," and other agencies.

The educational work of the public health nurse ranks first in prophylaxis. Unlimited protection from infection in early life, arbitrarily, up to the age of four years, and the control of the elements of malnutrition and fatigue each rank high in our estimate, these four items totaling nearly one-half the total score. It is our feeling that if those elements that are weighted high are emphasized the lesser factors will automatically fall in line.

#### RELATIVE VALUES IN ANTI-TUBERCULOSIS WORK.

<i>Avoidance of infection</i> .....	20
Unlimited protection up to 4 years ..	10
Hospitalization of open cases .....	4
Promiscuous spread of infection ....	3
Anti-spitting .....	.5
Anti-sputum (education) .....	2.5
Bovine tuberculosis .....	3
Meat inspection .....	.1
Health cattle and clean milk ..	.1
Pasteurization .....	2.8
<i>Detection and cure of tuberculosis</i> .....	16
Early detection .....	7
Prompt reporting .....	3
To authorities .....	1.5
To patient and family .....	1.5
Modern treatment .....	4
(home or sanatorium) .....	
Open-air schools .....	1.9
Tuberculin .....	.1
<i>Elimination of predisposing causes</i> .....	39
Avoidance of fatigue .....	10
Adequate nutrition .....	10
Alcoholism .....	.5
Occupation .....	5
Dusty .....	3
Other atmospheric conditions ..	1
Posture .....	1
Preventing other diseases .....	5
Good housing conditions .....	1
Ameliorating poverty .....	7
Inheritance .....	.5
<i>Public health nursing</i> .....	25
Educational work .....	15
Assistance in detecting and reporting cases .....	3
As a social agent .....	2
Infant welfare .....	2
School nursing .....	2
Industrial nursing .....	1

#### ANNUAL REPORT OF THE MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE, 1918.

By ETHEL M. SPOFFORD, BOSTON,

*Acting Secretary.*

IN the absence of our Executive Secretary, Mr. Seymour H. Stone, who has been granted an indefinite leave of absence for the duration of the war and is now associated with the War and Navy Department Commissions on Training Camp Activities in Community Organization, I am going to give you a summary of the year's work.

#### EDUCATIONAL AND PUBLICITY.

During the last year almost 27,000 pieces of literature were distributed. This large amount is due to a new leaflet, "Facts for Fighters," which was prepared especially for enlisted men and sent to the Massachusetts cantonments and exemption boards wherever there was a chance for distribution. A set of six educational articles on tuberculosis, to be used for copy in schools of stenography, were purchased by the League and are gladly furnished to any schools who would care to use them. Over 6000 Press Bulletins from the National Tuberculosis Association, mostly dealing with tuberculosis, were sent to city and state newspapers. A booklet on sleeping and sitting out was sent to medical men and others interested in tuberculosis. The balance of the literature distributed included circulars and pamphlets of an educational nature, programs and reports of the annual meeting. Along the lines of educational work, it might be added that our President was very successful in arranging a series of lectures given by men well known in the medical profession to the military doctors at Camp Devens. These were very well received. The question of lecturing to enlisted men came up, but the League was of the opinion that it would be a mistake for civilian doctors to endeavor to address the enlisted men. During February and March this year the League was glad to cooperate with the National Association in its membership drive to obtain 5000 new members.

#### LEGISLATION.

There were few general bills of importance before the Legislature of 1917 of immediate bearing on tuberculosis, and the same is true of the Legislature of 1918.

Probably the most important measure affect-

ing tuberculosis was one passed by the 1917 Legislature, allowing the State Board of Charity to pay ten and one-half dollars for state cases needing hospital care. Indirectly, this has been of great benefit in the tuberculosis campaign because many of the towns or cities refused to care for the state cases in the local hospitals, rather insisting that they should either go to the sanatoria or the State Infirmary at Tewksbury, because the former payment by the State of seven dollars was in no way sufficient to recompense the cities for the care of these state charges, the result being that many of the patients have refused to go to Tewksbury and have, consequently, remained in their homes, a menace to members of their families. This distinction of state patients, and the necessity of gaining a settlement in the towns in which they reside, should be done away with, and anybody who has been in a town long enough to acquire the privilege of citizenship should become a charge upon that community.

The so-called Incurable Consumptive bill before the last Legislature was defeated. It has been re-presented and will probably be reported upon favorably to the present Legislature by the Committee on Public Health, and it is hoped that everyone here will impress upon their representative and senator that this is a bill worthy of support.

The Legislature also passed a bill extending the subsidy for tuberculous patients not having bacilli in their sputum, providing that after a survey of the city that it is demonstrated to the Department of Health and Trustees of Hospitals for Consumptives that the city was providing adequate care for its open, advanced cases of tuberculosis. Under this bill the city of New Bedford has, after a survey, been granted permission to care for non-bacillary cases above the number of seventy-five. That is, the survey disclosed that in all probability seventy-five cases of advanced tuberculosis was the quota which should be expected from the city of New Bedford, and the twenty-five to thirty beds above this number can be filled by approved, non-bacillary cases, and the subsidy granted. Thus, by this survey, New Bedford has been put into the front ranks of municipalities caring for its tuberculous patients.

Another bill of importance has been passed by the present Legislature, which provides that all prisoners sentenced to more than thirty days' confinement must have at once a complete phy-

sical examination. This must ensure, I think, the discovery of a large number of cases of tuberculosis and the consequent transposition of these cases to the tuberculosis camp connected with the West Rutland Prison Camp, thus doing away with deaths of people from tuberculosis in the jails throughout the Commonwealth. This bill is also of importance to all those interested in the suppression of social diseases.

A bill was introduced into the Legislature, providing for the abolition of the Trustees of Hospitals for Consumptives, and the transfer of the administration of the hospitals to the Department of Health. As the Department of Health is an executive and scientific department, the bill was opposed by the Trustees and the Commissioner of Health, and at the present time has been reported adversely upon by the committee to which it was referred.

An amendment to the County Hospital bill has been introduced, by which the erection of county hospitals, securing of sites, etc., may be postponed until one year after signing the treaty of peace. This amendment has been prepared by the smaller towns in Worcester County, who have argued for it because of the expense of building at the present time. This amendment having been admitted by the Rules Committee, is under consideration by the Public Institutions Committee at the present time. It should be opposed. Several of the county hospitals have secured sites and prepared plans which have been approved by the State Department of Health, and have, in some instances, started construction. The Barnstable County Hospital has been completed and will be opened publicly in June. The city of Lowell has also very nearly completed the construction of its long-delayed institution.

The Legislature has granted the State Department of Health an appropriation whereby eight nurses are to be employed as assistants to the District Health Officers. These nurses will oversee the after-care work in their various districts, and, to unify and centralize their procedure, Miss Bernice M. Billings, who has been After-Care Worker for the Trustees of Hospitals for Consumptives, has been transferred to the State Department of Health and will be Director of this portion of the duties of the new nurses.

#### LECTURES.

During the year 29 lectures on tuberculosis

and industrial nursing have been given, 7 of these having been given by the Secretary; 6 under the auspices of the Rural Tuberculosis Committee, and 16 by the Secretary of the Committee on Health in Industry. Seven of these talks were illustrated and the total attendance at these lectures was about 2400 people.

#### SLIDES AND FILMS.

"The Great Truth," a film dealing with the tuberculosis problem, was loaned by the Boston Association to the League. It was used in 5 Cambridge motion picture houses, which showed it at 2 afternoon and 2 evening performances. The League is glad to be able to have the use of this film, and to send it out whenever it finds the chance to place this vital subject before the eyes of the public.

#### EXHIBITS.

Over 18,000 people in this State have viewed the Health in Industry and Tuberculosis exhibit at various health weeks, fairs, and other public exhibitions. The Health in Industry exhibit is one of special interest to those who wish to further the work of getting the manufacturer and employer in mercantile establishments to conserve the health of their employees. The Open Air School exhibition belongs to the Association and has also been loaned to the League for exhibition purposes.

#### RURAL TUBERCULOSIS.

The lecture prepared by this Committee on Tuberculosis in Cattle as an Economic and Public Health problem was arranged so that it could be used with 20 slides or read without the illustrations. This year the lecture was given on 6 occasions, at 4 of which the illustrations were used. The Chairman of this Committee, Professor Curtis M. Hilliard, has also given it with illustrations before classes at Simmons College. A letter was sent to about 200 state granges, offering the use of the lecture and slides without expense to the grange, stating that a member of the Grange could read the lecture or that we would be glad to furnish a speaker for them. Responses this year were not as many as formerly. Prior to the annual meeting of the State Grange the existence of this Committee was made known to them and it was stated that the Committee was prepared to help in any problem that might arise on this subject. For the future work an article on Bovine Tubercu-

culosis is to be prepared and sent to the state papers. The League is also planning for the future to promote the work of transporting nurses in rural districts.

#### HEALTH IN INDUSTRY.

Although no committee has been formed, it was voted at one of the executive committee meetings of the League to extend the work of the Boston Association Committee on Health in Industry throughout the State. The League voted to pay a portion of the salary of the Secretary and her expenses in League territory. This work has steadily increased and Mrs. Staebler, the Secretary, has had many calls to address District and Visiting Nurse Associations, groups of employers and boards of trade on the subject. Whenever a call has been made the League has been glad to have her respond because it means that each employer who is interested will undoubtedly see the wisdom of employing a nurse on part- or full-time service in order to conserve the health of his employees.

#### RED CROSS SEALS.

Inasmuch as the League cannot solicit contributions in communities where anti-tuberculosis associations are located, it is financed largely by receipts from the sale of Red Cross Christmas Seals. We are pleased this year to report an increase of \$551.04 in the net receipts from the sale of these seals, the total number of seals sold amounting to 3,588,452, which were valued at \$35,884.52. This makes an increase of 772,211 seals over last year's sales. The expenses of conducting the state campaign were \$1,355.47, and those of the League \$346.16, the amount sent to the American National Red Cross as its share being \$3,379.60. This leaves for use in the subordinate organizations for tuberculosis work \$28,003.20, and after the League's expenses are all paid, \$2800.09 for its work. The various anti-tuberculosis associations reported that the Red Cross Chapters, Boy Scouts, public and Sunday schools had greatly aided them and to all these the League wishes to extend its thanks in making this sale a success.

#### MISCELLANEOUS.

The school committee of every city and town is required by law to appoint one or more school physicians who should examine every child reported to them and make a diagnosis in the case. If a child should show symptoms of tubercu-

losis, the parents and Board of Health should be notified of the disease and the child sent home from school. There is a general belief that tuberculosis in most instances begins in childhood and we hope that the school committee will be vigorous in its follow-up work on physical examinations. It might be well for the various anti-tuberculosis associations to be more watchful in their localities in regard to school instruction upon the prevention of tuberculosis.

War Prohibition was endorsed by this League at one of its executive committee meetings, as well as the war program of the National Tuberculosis Association.

In 1917 there were approximately 5375 deaths from tuberculosis. Of these, 4600 were from pulmonary tuberculosis and 775 in other forms.

There are over 3300 public and private beds for tuberculous patients in the State, and of these, about 1065 are those of the state sanatoria. The new county hospitals, when completed, will greatly add to the number of beds and will take care of many patients who are now a menace to the members of their families while staying in their homes awaiting admission to the various state sanatoria.

#### FOLLOW-UP WORK IN TUBERCULOSIS IN THE SMALL TOWNS AND VILLAGES IN MASSACHUSETTS.

BY BERNICE M. BILLINGS, BOSTON.

WITH the exception of the after-care of the ex-sanatoria patients, which was started in 1912, there was no serious follow-up work of tuberculous patients in the small towns and villages in Massachusetts until the latter part of 1915. In the three-year period previous to 1915, the Visiting Nurse Associations and the visiting nurses had expressed willingness to assist local physicians in following up the patients discharged from the state sanatoria. In this way very good relationship had been established between the Trustees of Hospitals for Consumptives and the visiting nurse in each community, making the next step in follow-up work comparatively easy.

After the opening of the 54 dispensaries in 1915, the after-care work in these cities and towns of 10,000 and more inhabitants, was turned over to the dispensary nurses. This allowed more time to be devoted to the rural sections of the State. In the latter part of 1915, a

conference was held between Dr. Eugene R. Kelley, Director of the Division of Communicable Diseases of the State Department of Health, and the State District Health Officers, with Dr. Arthur K. Stone, Chairman of the Trustees of Hospitals for Consumptives, and the superintendents of the four state sanatoria, and at that time it was arranged that not only the ex-patients from the state sanatoria, but also all patients who had been reported to the State Department of Health in these small towns, should be visited, and a brief history of each patient should be sent to the State Department of Health. This marked an event in developing a definite nursing responsibility toward all tuberculosis patients in remote parts of the State. To assist in working out this general scheme of follow-up work the State Department of Health provided a list of all patients reported with tuberculosis from each small town to which the visitor was going to look up the ex-sanatoria patients. These reported cases covered a period of eight years.

Before visiting the home of tuberculous patients, an interview was obtained with the Board of Health Agent in each town. In the official record books was entered the date of the patient's report to the local Board of Health and the name of the physician who reported each case. These data were transferred to the history card of the State Department of Health. In each instance the physician who had reported the patient was seen in order to ask his advice and to gain permission to visit his patient. It was found that many of these patients had died, and that a large percentage of those who were living were under no regular medical supervision when visited. A history was taken of each patient, instruction in hygiene was given, suggestions were made that the children in the family, who had been exposed to tuberculosis, be examined and the patient when living was urged to return to his physician for examination and advice. If there was a regular visiting nurse in the community the patient was referred to her for home visiting. When patients were found to be living under undesirable conditions a detailed report was given to the private physician, the local Board of Health, the visiting nurse, and the state district health officer. After fourteen months of this work 903 histories were sent to the State Department of Health. It was then found that practically all of my time had been consumed in doing this



general follow-up work, there being so few ex-sanatoria patients in these communities. As my work was primarily for the after-care of the state sanatoria patients it was finally decided that my work should be confined to the visiting of the discharged sanatorium patients.

According to the last State Census there are in Massachusetts some 295 towns of less than 10,000 inhabitants. There are 52 towns with a population of from 5000 to 10,000 people. Forty of these 52 towns have the services of a visiting nurse, and in addition 5 of these towns are employing a full-time school nurse. In the smaller communities there are 80 towns with a population of from 2000 to 5000. Twenty-eight of these 80 towns have a visiting nurse, but there are no full-time school nurses. There are 163 towns of less than 2000 population. Five of these towns employ the services of a public health nurse. The financing of this visiting nursing work usually has been made possible by contributions from public-spirited citizens who have given their time and money to this good work. Ordinarily the visiting nursing work is under an association made up of women. Many of the towns appropriate money which is given to the nursing association to further their work, and this has greatly helped the organizations. At the present time in 4 towns in the State the nursing work is entirely supported by public appropriation.

It has been my good fortune to visit the greater number of these small towns, and get a good knowledge of the follow-up work as it is being done in Massachusetts today. I am encouraged by the interest and good will of both public and private agencies, and the helpfulness of private physicians throughout the State. A great drawback to good follow-up work is that we are expecting altogether too much from one nurse. In each of the 40 towns where a visiting nurse is employed, this nurse is trying to do bedside nursing, prenatal and postnatal work, occasionally a certain amount of school work, and attempting to do the follow-up work of the tuberculous patients. The bedside care of the sick must be attended to and in busy times it means that the nurse works from eight to twelve hours a day. In any case it is an injustice to expect a nurse to do instructive work in a day which is already too full. One of the great dangers is spreading nursing work too thin, and when this is done it is always the educational work which suffers most.

I have been told repeatedly in towns where one nurse is being overworked, that in regard to the consumptive patients it is impossible to get them to go to sanatoria or hospitals. This usually proves that the tuberculous patients are not well supervised. If the nurse is a regular visitor the patient and family gradually get to place a great deal of confidence in her judgment. Then when the physician and nurse advise hospital treatment it is not difficult to persuade the patient to make this necessary change. It is also most unfortunate that the physician or town authorities do not send the nurse to many consumptive patients until they are very ill and need actual bedside care. This is due to several things: 1st, lack of coördinating forces of Board of Health, private physician and visiting nurse associations; 2nd, the physician does not realize that a nurse can help him in teaching the patient and family how to follow out his advice and treatment; 3rd,—and quite as important,—the physician knows how much the nurse has to do and that she is already overworked, and for this reason he will not ask her to take on anything extra in the way of educational work.

In our small towns of between 2000 and 5000 inhabitants the nurse is not so badly overworked, and yet in a town of 5000 persons there is certainly plenty of work to keep two nurses constantly employed. In the 5 small villages of less than 2000 persons, where a public health nurse is employed, there is a splendid opportunity to develop the work along the best lines. Many times I am told by men and women living in towns of from 2000 to 3000 inhabitants that there is no need of a public health nurse as there would be nothing for her to do. If a nurse was engaged for one of these towns, and if at the end of six months her days were not full, it would be the fault of the nurse in developing the work, and not because there was no need for her work in the community. With the great distances it would mean that with a few bedside calls, prenatal work, the following up of the babies, visiting the consumptive patients, and possibly an hour in the mill or factory in the town,—and in Massachusetts there is a small factory in nearly every town,—the nurse could not fail to keep busy. Physicians in these towns often tell me how much they desire the help of a trained worker to give intelligent assistance when it is badly needed. In these small communities we do not need a visiting

nurse, a prenatal nurse, and a tuberculosis nurse, but we do need well-trained women who will do whatever public health nursing is needed in the particular towns in which they are employed. If in this community the nurse can prove to the physician that she is of real value to him in a time when he needs her, I do believe he will be far more ready to approve of her visiting his consumptive patients and helping them to follow out his advice.

In regard to school nursing, I should like to say that this past winter in one of the small villages of less than 400 persons where I was visiting a consumptive patient I had an opportunity of talking with a woman intimately associated with the public schools. She told me of a child who had eye trouble. The school physician advised that this child go to an oculist, and a note to this effect was sent to the mother. Then came the summer vacation, and in the fall this child returned to school with the eyes in bad condition. It was then learned that she had not been seen by a physician since the closing of school. The superintendent of schools went to the mother, and explained that the child must go to the oculist, and finally the mother consented. After the physician had examined this child's eyes he told the mother that there was no sight in one eye, but he would do what he could to save the other eye. Had there been a public health nurse in this community to follow with a home visit the note which was sent to the home of this child, this unfortunate case of neglect would probably never have occurred.

At the present time there are approximately fifteen of these larger communities which have placed an automobile at the services of the nurse so that she may visit patients in the more remote parts of the town. It is a short-sighted policy which allows the visiting nurse to visit only those patients who are living near the car-line.

Berkshire County has a public health nurse who is doing special school work. This should be a great help in stimulating communities to greater activity along the lines of public health nursing.

The Child Conservation Committee employs eight nurses, one in each district of the State. These nurses are planning to visit the small towns and villages in the State, particularly in reference to saving the lives of children.

The State Department of Health is planning

to employ eight public health nurses, one under each district health officer. These nurses will devote a part of their time to tuberculosis follow-up work, particularly in the small towns and villages. This, too, should be a great help in proving to the towns the need for public health nurses.

In closing this paper, may I repeat that although we have 73 small towns employing a public health nurse, yet if we wish to have worth-while follow-up work done by these nurses we must give them more assistance. This assistance should be a conveyance, and additional nurses as often as it can be demonstrated in the community that they can be used to advantage. In our country districts, in towns of from 300 to 500 persons, we could use one general nurse to take care of two or three towns. It is said that this nursing work cannot be done in the winter time, but it is only occasionally, and for short periods of time, that the roads are actually impassable. During this past winter I have been through Berkshire, Franklin, Hampden, and Hampshire Counties, traveling from the last of December to the first of March, with poor train service, and making use of horses and sleighs as never before, yet I have been able to reach all the villages in which there were ex-sanatoria patients. These villages were oftentimes miles from the railroad station. Farmers are travelling over the roads constantly, and where the towns-people can go it is perfectly practical for the visiting nurse to make her way, providing she is given transportation.

It might well be a part of the program of the Anti-Tuberculosis League to aid in stimulating public opinion so that we shall cover the most remote sections of the State with public health nurses. It is only in this way that we shall be provided with facilities for doing follow-up work in the homes of tuberculous patients.

#### WAR AND TUBERCULOSIS.

BY CHARLES J. HATFIELD, M.D., PHILADELPHIA,  
*Executive Secretary of the National Tuberculosis Association.*

THE very kind remarks made by Dr. Bowditch about the National Association and its Executive Secretaries can be promptly returned, because we all know that the National Association has had very distinguished Presi-

dents, and one of the best of them was Dr. Bowditch.

Miss Beard has referred to the fact that the tuberculosis campaign or public health work generally has received a very great stimulus from the war. It seems that we may well start our discussion of War and Tuberculosis with a recognition of the truth that the war has brought to us a greatly increased opportunity and a greatly increased responsibility. The reason is very plain, since war and disease are always closely associated,—disease following in the wake of war. Through all of the great wars of history the development and spread of disease, even to the extent of epidemics, will be noted. The causes are very simple,—the transfer of large bodies of men from regular methods of life to irregular living in strange and perhaps inclement climates; over-exposure and over-exertion; insanitary housing; irregular and impure food supplies,—all these factors lead to the development of disease. Enteric disturbances perhaps take place at the head of the list. Our shocking experience with typhoid fever in the Spanish-American War is an instance. We find also, in our history of armies, cholera, dysentery, smallpox or typhus fever.

The association of war and disease is serious so far as men are concerned who are actually engaged in military operations. Although perhaps not so evident, the association is even more serious when we consider the health of the civilian population of a country at war. Here also the reasons are obvious,—since in a civilian population there may be extreme distress on account of the destruction of homes in invaded territory, the driving back of great masses of population as refugees, over-exposure and over-fatigue, overcrowding and insufficient feeding. Moreover, even in homes outside of territory directly subject to war conditions, there is distress because of the loss of ordinary means of support and greatly increased hardships in securing the necessities of life. In general, there is a sharp revision downward of the scale of living where such change may mean a cutting off of the necessities of healthful living.

To trace the spread of tuberculosis in consequence of a great war is not so easy as the following up of the more acute and sometimes epidemic diseases. We may not be able to prove that there is an actual and demonstrable spread of tuberculosis, but we have weighty evidence

of the increased development and activation of existing tuberculosis. Possibly the tuberculosis has been present before, but it has not been in an active condition, and, therefore, has not been a public health problem until it has been developed or discovered by war conditions.

In the first year of the great war we were greatly disturbed by reports brought to us as to the increase of tuberculosis in France. The record was so startling that the International Health Commission of the Rockefeller Foundation determined to examine into conditions, and commissioned Dr. Hermann M. Biggs of New York to go to France to make a careful survey and to report recommendations as to what helpful assistance might be given. After a very careful survey of the records of the French and also an examination into conditions among the English troops and the Canadians quartered in England, Dr. Biggs reported that the spread of tuberculosis had been astounding; that the development of the disease in all classes of population had been very great and that the nation was in urgent need of help. Dr. Biggs did a very great service to France by recommending a course of action to be taken by the Rockefeller Commission, which consisted in securing a competent Commission to go to France and to institute measures for the control of the disease. Dr. Farrand, the President of the University of Colorado, who had previously been the most efficient executive of the National Association, was secured to head the Commission. As heads of important departments, Dr. James Alexander Miller of New York accepted the direction of the medical aspect and Prof. S. M. Gunn, of the Massachusetts Institute of Technology, accepted the direction of the educational side of the work. The Commission arrived in France in July, 1917, and in less than one year has developed a splendid plan of organization. Its work is closely co-ordinated with that of the French authorities and also with the Department of Civil Affairs of the American Red Cross in France. When we know that Dr. William Charles White of Pittsburgh is at the head of the tuberculosis work of the American Red Cross, and Mr. Homer Folks of New York is the Director of the Department of Civil Affairs, we can understand how close has been the coöperation between the Rockefeller Commission and the Red Cross authorities. The report of the French authorities, as brought to this country by Dr.

Biggs, has been considerably modified through later investigations. Although the amount of tuberculosis is astounding, its distribution differs from that shown in the earlier records. One point of especial difference has been demonstrated, namely—that army life, even at the front, does not lead to a great increase in the incidence of tuberculosis. On the other hand, there is an impression that the physical condition promoted by army discipline tends to increase the resistance of the soldiers even though they are exposed to trench life. To offset this rather favorable report, it has been established that the incidence of tuberculosis among the industrial classes is very high. Upon the charts shown by Dr. Miller the areas of the deepest black were always points where an industrial population was most thickly settled,—where people had long and hard hours of work and were crowded into insanitary quarters. When America entered the world war, the alarming reports from France tended to direct the attention of the American authorities promptly to the subject of tuberculosis. From the very first the Surgeon-General's office, as the medical agency in charge of the greatest number of men, took vigorous action to prevent the disease in the Army. The National Association also took an active part in co-operating in the plans to free our troops from the menace of tuberculosis and so far as possible to prevent a spread of the disease among the civilian population affected by the war. The action taken by the Surgeon-General of the Army has, of course, been paralleled by similar action by the medical authorities in charge of the other branches of the service. It may be well to take a few minutes to discuss briefly the measures taken by the medical service to prevent tuberculosis in the Army.

One of the first steps was the appointment by Surgeon-General Gorgas of Colonel George E. Bushnell,—who has been for years at the head of the Fort Bayard Sanatorium in New Mexico and is recognized as a distinguished authority on tuberculosis,—as the officer in direction of all measures taken to prevent the disease. In the plans, as they are so far developed, there are four distinct points to be considered.

First, the exclusion of cases of active tuberculosis from the Army; second, the care and education of the men in active service in order to prevent the disease; third, the care of soldiers invalided home on account of tuberculo-

sis and, indirectly, their economic reconstruction, if such a thing is possible; fourth, the consideration of general public health through making known to the health authorities throughout the country the cases of tuberculosis discovered in the draft or developed in the service. Plans to meet each one of the above conditions have been carefully made and are being continuously developed. Intensive study is being given to each phase of the problem. I personally believe that through the careful execution of the plans, active cases of tuberculosis will be excluded from our Army, and we can, therefore, feel a fair degree of certainty that our forces will be remarkably free from cases that are likely to spread the disease.

So far as the exclusion of cases of active tuberculosis from the Army is concerned, examinations before Exemption Boards have been, in general, incomplete and inadequate. The medical examination was casual and hurried. The instructions sent out from the office of the Provost-Marshal General did not place any importance whatever on the examination of the chest, and, therefore, on the discovery of tuberculosis. As a result, the Exemption Boards accepted a great many cases of tuberculosis. When, however, men were admitted to the camps or cantonments, the representatives of the Surgeon-General's office took vigorous action. There was a preliminary examination by the medical staffs; later a thorough chest examination by the Tuberculosis Commissions. The Commissions were appointed with considerable care and consisted of experts in the examination for tuberculosis, recruited, so far as possible, in the neighborhood of the cantonment. For more than six months the Tuberculosis Commissions have been combing over the men who were sent to camp and rejecting those in whom there was an active tuberculosis. The special Commission plan, however, has been somewhat expensive and will be somewhat changed by a recent ruling of the Surgeon-General. Apparently he has decided that the primary examination is to be made much more complete and more satisfactory, and the medical staff of each camp is to be increased by the addition of many of the specialists formerly included in the Tuberculosis Commission. The men who pass the preliminary examination, which will be given, presumably, within a short period after their arrival at camp, will be considered "in line of duty" and fully enlisted. In this



way all cases that later develop tuberculosis will be taken care of in the Army. The new ruling is of great importance to those of us who have been attempting to care for the men who have been kept in camps and cantonments for periods up to three months, and when found to be tuberculous, have been discharged without military standing. The injustice of such a proceeding has been finally recognized, and it is believed that the new system will correct it.

When a man has been accepted for service, his protection from infection and his education in personal hygiene will be attended to. In co-operation with extra-military agencies, such as the National Tuberculosis Association, by bringing into play the Y. M. C. A. facilities, a definite campaign of education in the prevention of disease, especially of tuberculosis, has been arranged. The instruction will be made, so far as possible, entertaining, as we are told there is already too much didactic lecturing, and the men, tired out with drill, are not in condition to listen to dry teaching. Health instruction is to be made attractive by the use of moving pictures, lantern slides, etc., made in military surroundings, a specially designed lecture for a military audience, and an instructive poster exhibit. The posters are simple, bold and impressive, and we think will attract attention and convey the lesson. They appeal to patriotic motives rather than to fear of infection. Soldiers are stimulated to keep themselves fit.

For the enlisted man who is invalided on account of tuberculosis most interesting and somewhat complex plans are being developed. The system will include not only care and medical treatment, but on attempt, wherever possible, to restore the men to an economic independence, and, to this end, to provide certain means of vocational education.

At present the plan is to treat tuberculous soldiers in large military sanatoria. The announcement has been made that camps will be located in New Haven, at Otisville, at Asheville, at Denver, and in New Mexico. Attention has been called to the fact that men will often refuse to go to a military camp and will demand their discharge from the Army. In Canada and England, it has been found very difficult to retain in military service men who were ill with tuberculosis. Of the first contingent sent back to this country from abroad,

a large majority of the cases of tuberculosis have already secured their discharge from the Army. To meet this situation the Surgeon-General has recently ruled that no one will be discharged until his recovery is complete or is as complete as possible. A man who is discharged on account of disability comes at once under the rules of the Bureau of War Risk Insurance in order that he may be paid compensation. If not discharged, he remains in the regular service and gets his salary, and does not get compensation. If an agreement with the War Risk Bureau can be reached to the effect that no compensation will be paid by the Bureau to a man who is not discharged by the medical authorities, the Surgeon-General may be able to retain the men under treatment so long as is proper.

The question of reconstruction and re-education is closely associated with the point that we have just discussed. The agencies interested in this phase of the care of tuberculous soldiers are: the Surgeon-General's office, the Federal Board of Vocational Education, the War Risk Bureau and, incidentally, the American Red Cross. Preliminary studies of courses of instruction have been made and the experience in England, Canada and France has been studied. Colonel Frank Billings of Chicago, has been put at the head of the Bureau of Reconstruction and Military Hospitals in the Surgeon-General's office. Under his direction the plans for reconstruction and re-education are being developed. The general outline is to have a large convalescent camp in each one of the sixteen military districts of the country. Apparently, each camp will consist of the hospital, one section of which will be assigned to tuberculosis, another to nervous diseases, another to maimed soldiers, etc. As the center of the group, where the hub about which the whole system should revolve, will be the school of preparatory vocational education or industrial rehabilitation. Twelve of the sixteen hospitals have been designated by the Surgeon-General, certain of the large military hospitals being set aside for this purpose. The stages of education are of interest. In the first stage, bedside occupations are provided; these are designed to occupy the patients' minds and to make them feel that they can make use of whatever strength or ability is left to them. The effect of bedside occupations is, therefore, chiefly psychological. The next stage is occu-

pation therapy or a curative workshop. Here patients will get more direct connection with industrial life. Although emphasis will be laid on the therapeutic value of the work, the instruction should be preparatory to the final step in the return of disabled men to economic life. The third and final stage should be the school for industrial or vocational education, to which patients may be graduated when therapeutic treatment is no longer considered necessary. The final stage will probably be in charge of the Federal Board for Vocational Education.

In the development of this system, the experience of all countries will be helpful. At the beginning probably it will be necessary to borrow teachers. Later on the staff may be recruited from disabled men who have fitted themselves to teach. The Red Cross has already started an Institute for Crippled and Disabled Men and is making preliminary studies as to the field to be covered.

Another aspect of the work of reconstruction is of interest. We must expect that many of the men who have come back disabled and in need of rehabilitation, will refuse re-education. They are allowed compensation sufficient to keep themselves and their families. They feel that they have given all and now deserve freedom from discipline. In other countries the experience has been that only fifteen per cent. of the men who need industrial re-education are actually getting it. An attempt to meet this difficulty has been made by coöperation with the War Risk Insurance Bureau. The principle is proposed that a man, when discharged on account of disability, shall receive such compensation no matter how much additional money he earns through industry. On the other hand, it is proposed that the Bureau of War Risk Insurance insist that disabled men submit themselves to re-education in order to prevent the deterioration in manner of living. The compulsion toward re-education can be brought about by cutting off a part, at least, of the compensation, provided a man refuses to make use of whatever ability is left to him. It is yet doubtful just how this principle can be developed into an acceptable procedure.

As to the plans adopted by the Surgeon-General's office that relate to general public health, and the control of tuberculosis, interesting developments may be noted. There was prompt recognition of the fact that examina-

tions for military service are certain to bring us valuable knowledge concerning the extent of tuberculosis and increased responsibility for the care of cases that are newly discovered. The result of the examinations so far seems to be that our former estimates as to the number of discoverable cases of tuberculosis in the country must be doubled—that is to say, instead of estimating from five to ten living cases of tuberculosis for every death of the disease, we must estimate from fifteen to twenty cases for every death. Additional knowledge on any subject always leads to the development of equipment to meet the new situation. Therefore, although we may at first be disheartened at the thought that facilities are not at hand to take care of the increased number of cases, yet the field has been proven larger than we thought and a new weapon with which to educate the public in the prevention of tuberculosis and the provision of equipment for its proper care has been given us.

When we come to consider what the State of Massachusetts can do to meet its responsibility for tuberculosis discovered in connection with the war, we must realize that the pre-war equipment, however highly organized, is not adequate for the new responsibility. A few fundamental principles should be observed. First, we must look to it that no ground gained before the war shall be given up. What has been done in the past shall be considered only a foundation and the beginning of what must be done in the future. The public must be made to understand that, although the need was great in the past, it is far greater at present. Secondly, equipment in the shape of hospitals, sanatoria, dispensaries, etc., must be developed for the care of Massachusetts men who may be returned to their own sections with tuberculosis. The Army plans to take care of its disabled men. We know that although the plans of the Army are made with great wisdom,—and I personally believe with splendid foresight,—yet those plans are subject to modification. We know that however rigid the ruling relative to the retention in military service of every soldier until he has had full treatment, there are going to be exceptions to this rule. Men who are sick want to be near their homes and to be treated by doctors in whom they have confidence. They and their families are often going to appeal to Congressmen and every other source of pressure to secure this

object. Therefore, in my opinion, we must prepare to a certain extent for the care of soldiers near their homes. Moreover, through the military cases we are likely to discover additional cases of tuberculosis by follow-up in the families of the soldiers. Therefore, you will need additional accommodation in your public institutions. In the private or semi-private sanatoria there will also be a need for development. Officers demanding somewhat better quarters than can be provided in the public institutions will come to you for accommodation. The need of an institution such as the new Crane Sanatorium at Rutland seems to be evident.

Finally, the State of Massachusetts must be certain that the closest possible coöperation between local, state and federal authorities shall be secured. In your State, local health groups have no trouble in coöperating with your most efficient State Health Department. I believe the same thing will hold true in coöperation with Federal authorities. Do not forget, moreover, that for emergency aid in public health work developing in connection with military necessities, the American Red Cross stands back of us ready to help. I wish to bear testimony to the splendid spirit of coöperation which one meets from the Federal authorities at Washington when you ask them to consider the problems that come up in connection with the fight against tuberculosis. For instance, we have been anxious as to the care of men who are discharged on account of tuberculosis from military service without military standing, or who are entitled to compensation and must wait for it. Apparently in all cases where there is emergency due to military conditions, the Red Cross is willing to help. Certainly by taking a broad point of view, by shouldering our own responsibilities and also bringing in on a reasonable basis, State and Federal agencies, we can accomplish the best results.

In closing, I wish to make an earnest appeal for hearty support of the measures taken by authorities in the field of public health. There may be certain details about which we may have differing opinions, and it may be our duty to bring the points of difference to the attention of the men who are at the heads of Departments in Washington. But when a ruling is made that touches us in our public health work, we must give it a whole-hearted and fully developed trial. I can bear tes-

timony to the single-mindedness, the broad-mindedness, and the devotion of most of the officials with whom I have been in contact and who have been planning for the health of the nation under war conditions.

#### CONSERVATION OF MAN POWER IN INDUSTRY.

By ANNA M. STAEBLER, BOSTON,

*Secretary, Massachusetts Committee on Health in Industry.*

THE need for conserving man power in industry has been suddenly forced upon the employer because of the drafting of men into the Army and a cutting off of immigration.

Before this country entered the war there was an almost reckless turnover of help, due largely to the fact that the employer knew there were plenty of men waiting at his gate to replace those who left his employ. The up-to-date employer made a study of the cause of turnover and tried to remedy it, because a frequent turnover was a loss. This has led and is leading to much industrial betterment.

The situation today is very different from that preceding the war. Many manufacturers are feeling keenly a shortage of help, while being pushed to the limit with contract government orders. Under such pressure the temptation has been to lower the labor standards, many of which were hard-won from time to time through legislation.

England and France have sounded a warning for us because of the mistakes they made, early in the war, by lowering their standards in the frantic rush to produce munitions and army supplies. Hours of labor were lengthened; Sunday, as a day of rest, was eliminated; women and minors were pressed into industry, and other such mistakes made, till fatigue and broken-down health had made such an inroad upon the necessary numbers of workers that drastic legislation was passed and rigidly enforced.

Notwithstanding this lesson, learned at such cost by the Allies, there are war industries in this country making the same mistakes with their eyes open, and yet blind to results.

In Massachusetts the maintenance of labor laws is carefully watched. We have a special War Emergency Commission which gives hearings once a week to manufacturers of war supplies, who ask for exemption from certain labor

laws for a limited period in order to fill their contracts on time. Representatives of organizations interested in good working conditions are present to see that standards are not unnecessarily lowered.

Labor conservation was recently given notable recognition in orders issued by the Chief of the Bureau of Ordnance to arsenal commanders and manufacturers filling war contracts, calling for the maintenance of advanced protective standards for the workers. A similar order was issued by the Quartermaster-General.

To quote from a bulletin issued in January, 1918, by the American Association for Labor Legislation: "These orders rank among the most enlightened official human documents ever issued by any government either in peace or in war. Their influence upon the movement to safeguard the health and safety of working men and women, and to protect children, cannot be overestimated."

Since these orders cover only the manufacture of munitions and the filling of war contracts, there are many remaining loop-holes for breaking down labor standards. Let us consider the chief of these; also the safeguards we may employ to combat them.

#### *Hours of Labor.*

*Overtime* is an industrial abuse, which needs unusually close watching at any time, and especially in war-time. It has been proved repeatedly and conclusively that there is an increase in output during the shorter working day. It was found, while making a time study "that women, working on moderately heavy lathe work, whose output was 100 units when working 75 hours a week, increased their output 34% when the hours were reduced to 60 per week, and 58% when the period was reduced to a 50-hour week. Men engaged on heavy munition work increased their hourly output from 100, on a 60-hour week, to 139 on a 50-hour week basis." (BOSTON MEDICAL AND SURGICAL JOURNAL, April 4, 1918.)

The longer working day is, therefore, less economical. It commonly causes fatigue. Most employers and all insurance companies covering accidents and occupational diseases know that fatigue is largely responsible for accidents, sickness, diminished efficiency, loss of time and lessened output. Why, then, work a man, woman or child to the point of fatigue?

We look to the State Board of Labor and

Industries to enforce the laws governing the length of the working day for men, women and minors, the length of the lunch period, the observance of Saturday afternoons, every Sunday and certain days as holidays. In addition to observing such laws, some manufacturers allow rest periods of ten or fifteen minutes during forenoon and afternoon. This results in a greater output. Women and young persons cannot work profitably for more than 5 hours continuously.

*Fatigue* is lessened by the 8-hour shift. A 24-hour period of two shifts shows greater fatigue and is less profitable.

*Night Work.* Attempting to turn night into day, especially for a continuous period of considerable length, should be avoided when at all possible.

Women and children should not be employed on night shifts, chiefly for moral reasons. If war conditions force women to do night work, their welfare should be carefully guarded.

#### *Standards in Workrooms.*

Standards to provide good light, adequate ventilation, sufficient heat, pure drinking water (supplied through approved and frequent bubblers), proper washing facilities, control of the spitting menace, approved seats, sanitary toilets, and to prevent danger from fire, accident, occupational diseases or other hazards, should be conscientiously observed.

A safe and sanitary workshop is an obligation due the employee by the employer.

#### *Employment of Women.*

The health of women workers should be conserved because many of them will be the future strength of the nation. Six million women are employed in industry in Great Britain, two million of whom are working on shells, which is exacting, hard work. England and France learned that their health must be cared for or they would certainly break down. Let us profit by their lesson. Orders from the Ordnance Department and the Quartermaster-General read: "Night work for women should be prohibited. Effort should be made to restrict the work of women to 8 hours, even where the law permits a nine or ten-hour day. Special precautions to be taken regarding rest periods and seats, time and place for meals, Saturday half-holidays and lifting heavy weights. When it



is necessary to employ women in work hitherto done by men, care should be taken to make sure that the task is adapted to the strength of women. The standards of wages hitherto prevailing for men in the process, should not be lowered where women render equivalent service." No tenement house work.

#### *Factory Day Nurseries.*

At least three manufacturing firms in Massachusetts maintain day nurseries where children whose mothers are employed in the factories are cared for during the day. Is the shortage of men so great that mothers must be drawn into industry? That time may come, but has it arrived?

The place for the mother is in the home, caring for her children. Our child life must be conserved and the mother allowed to remain at home in order to help in this conservation.

The warning note against factory day nurseries has been struck loudly by public health workers.

#### *Minors in Industry.*

There are over 50,000 minors between the ages of 14 and 16 employed in Massachusetts. There are 8000 employed in Boston, showing an increase of 2000 in ten months, from Jan. 1 to Nov. 1, 1917.

If we sap or exhaust the vitality of our undeveloped boys and girls of today, we shall surely pay for it in physical, mental and moral weaklings a few years hence, unless they are most carefully guarded by protective laws. Regarding the health of these minors, they should be given a thorough medical examination before employment. I have been told that the present examination usually goes no farther than a glance at the child and the signing of a card. A thorough examination would disclose many opportunities for the treatment of incipient conditions and would, furthermore, enable the physician to designate in what industries and on what particular processes a boy or girl who had a slight physical impairment might safely work. The physician might be a medical vocational guide. He has a wonderful opportunity to do preventive and constructive health work.

These children should be encouraged to take up healthful recreation and they should be informed as to the opportunities open along this line. Between the ages of 14 and 16 these boys

and girls should be compelled to attend continuation schools during the working day—not in the evenings. Boston established a continuation school in 1914, but it is the only city or town in the State making the attendance at such a school compulsory by law.

#### *Prevention of Accidents and Occupational Diseases.*

Insurance companies are making it worth while for employers to safeguard their employees against accident and occupational disease. Many plants have organized safety squads.

#### *Effect of Alcoholism on Industrial Workers.*

The drinking man is more susceptible to accidents and occupational diseases than the abstainer. He is affected more readily by fatigue, his capacity for skilled work is impaired, his muscular working capacity reduced, and his memory impaired. Alcoholism is a considerable cause of the shifting of labor, lost time and spoiled work.

Among drinkers there is greater frequency of accidents, a longer recovery period and a heavier death rate. Accidents decreased 54% in a Pennsylvania steel plant in the first six months after the town went dry, as compared with the same time in the preceding wet year. Some firms try to combat alcoholism in their men by offering non-alcoholic drinks, including coffee and milk at less than cost. National prohibition only will be the solution of the problem.

A scientific study made by a sick benefit society found that drinkers 25 to 34 years of age lost 372 days in recovering from wounds for every 100 lost by the average insured man, while their death ratio was 4 to 1.

#### *Industrial Nursing.*

Approximately 125 factories and stores in Massachusetts have established nursing service, and employ nurses on full or part time. These nurses do first aid work, inspect the sanitation of the plant and tenements, do social service work, and, in the isolated mill towns, often do bedside nursing in the homes, as a visiting nurse would do. Their work is preventive and constructive. Insurance companies consider that the industrial nurse is a safety factor and so allow a reduction in the rating to firms employing nurses. Undoubtedly she is the most potent factor we have in conserving the health

of the employee. Our Committee on Health in Industry has been, for nearly three years, interesting employers in the value of the trained nurse in industry. Last year we helped to establish nursing service in 20 plants. In addition to this important piece of health conservation work, 53 noon health talks were given in factories to approximately 4000 women employees. Three of our largest department stores asked for these talks to be given to their employees. Three thousand leaflets on health subjects were distributed after the talk. Our exhibit on health in industry is sent to any part of the State. Slides are used for illustrated talks on subjects pertaining to health of workers and good working conditions.

We stand ready to help in conserving man power in industry.

The war has revealed, more than the days of peace, the need for good working conditions and the maintenance of the health of industrial workers.

To maintain health means to maintain working efficiency, while reduction of health means loss of efficiency. Sickness decreases the individual's production and increases the risk of accident. An epidemic of sickness, be it nothing more than grippe, can completely disorganize a department or even an entire plant. Every man is needed on his job these days. Everything possible should be done in the way of legislation and the enforcing of the laws to conserve the safety, health and vitality of the industrial army, on which depends the supply of munitions, food and clothing and, more than all, ships to carry them across.

### Original Articles.

#### IDIOPATHIC EPILEPSY A SYMPATHICOPATHY.

By EDWARD A. TRACY, M.D., BOSTON.

(Continued from page 814.)

The association of pigment spots with vasoconstriction spots, and the constant presence of both in idiopathic epilepsy, is shown by the following observations, copied from the records of fifty-eight patients.

CASE 3. Obs. 1511. Right forearm: dorsal surface shows vasoconstriction spots and one pigment spot. On palmar surface, one vasoconstriction spot; a pigment patch near the wrist.

CASE 2. Obs. 1507. On right forearm, palmar surface, two vasoconstriction spots; one pigment spot near ulnar styloid.

CASE 4. Obs. 1515. Vasoconstriction spots and pigment spots on dorsal surface of right forearm, and on palmar surface of left forearm.

CASE 5. Obs. 1518. Vasoconstriction spots and pigment spots on dorsum of left forearm, and also on plantar surface.

CASE 7. Obs. 1524. Vasoconstriction spots on dorsal surface of right forearm, and a vasoconstriction spot and pigment spots on plantar surface.

CASE 8. Obs. 1528. Vasoconstriction spots and pigment spots on dorsum of right forearm, and on palmar surface a vasoconstriction spot and a few faint pigment spots.

CASE 9. Obs. 1531. Vasoconstriction spots on dorsum of right forearm with pigment spots.

CASE 10. Obs. 1535. On dorsum of left forearm are three vasoconstriction spots and numerous pigment spots.

CASE 11. Obs. 1539. On right forearm, palmar surface, are vasoconstriction spots and a pigment spot.

CASE 12. Obs. 1543. On right forearm—palmar surface—a vasoconstriction patch and one pigment spot. On left forearm—palmar surface—a vasoconstriction spot and a faint pigment spot.

CASE 13. Obs. 1546. On right forearm, dorsal surface, one small vasoconstriction spot and a pigment spot.

CASE 14. Obs. 1550. Vasoconstriction spots and pigment spots on palmar surface of right forearm; on dorsal surface similar conditions.

CASE 15. Obs. 1554. On left forearm, palmar surface, vasoconstriction spots and pigment spots.

CASE 16. Obs. 1557. Vasoconstriction patches and several pigment spots on palmar surface of right forearm. On palmar surface of left forearm, vasoconstriction spots and a few faint pigment spots.

CASE 17. Obs. 1561. On dorsum of right forearm are four pigment spots and a vasoconstriction patch; on the palmar surface are a few vasoconstriction spots and a few faint pigment spots. A similar condition observed on left forearm.

CASE 18. Obs. 1565. Right forearm: dorsal surface shows vasoconstriction spots and innumerable freckles; palmar surface shows vasoconstriction spots and pigment spots; palmar Left forearm: dorsal surface shows vasoconstriction spots and pigment spots; palmar surface, numerous vasoconstriction spots, freckles, and a large pigment spot.

CASE 19. Obs. 1569. Vasoconstriction spots and pigment spots on dorsum of right forearm. Vasoconstriction spots and pigment spots on palmar surface of left forearm.

CASE 20. Obs. 1573. Right forearm: dorsal surface shows vasoconstriction spots and pigment spots. Left forearm: a few vasoconstriction spots and pigment spots.

CASE 21. Obs. 1576. Left forearm shows vasoconstriction spots and numerous faint pigment spots on the dorsal surface.

CASE 23. Obs. 1581. Right forearm: dorsal surface, vasoconstriction spots and pigment spots; palmar surface, vasoconstriction patches and pigment spots. Left forearm: dorsal surface, vasoconstriction spots and two pigment spots.

CASE 24. Obs. 1584. On dorsum of left forearm, a vasoconstriction spot and six pigment spots; on palmar surface, a few vasoconstriction spots and pigment spots.

CASE 25. Obs. 1588. Left forearm: palmar surface, vasoconstriction spots and one faint pigment spot; on dorsal surface, pigment spots. Right forearm: on dorsal surface, scar from a burn.

CASE 26. Obs. 1592. Right forearm: on palmar surface, vasoconstriction spots and pigmented skin near the wrist.

CASE 27. Obs. 1595. Left forearm: dorsal surface shows vasoconstriction spots and seven pigmented spots; palmar surface shows vasoconstriction spots and two pigment spots. Right forearm (redder): on dorsal surface numerous vasoconstriction spots and pigment spots; on palmar surface, one pigment spot.

CASE 28. Obs. 1598. Right forearm: on palmar surface, vasoconstriction spots and a few minute pigment spots. Left forearm: on dorsal surface, vasoconstriction spots and many pigment spots.

CASE 29. Obs. 1602. Left forearm: vasoconstriction spot near wrist and pigment spot on hand—dorsal surfaces.

CASE 30. Obs. 1606. Left forearm: dorsal surface shows vasoconstriction spots and pigment spots.

CASE 31. Obs. 1609. Right forearm: palmar surface shows vasoconstriction and pigment spots. Left forearm: dorsal surface shows vasoconstriction spot and pigment spots.

CASE 32. Obs. 1611. Left forearm: dorsal surface shows vasoconstriction spots and pigment spots. Right forearm: numerous white scars, vasoconstriction spots and pigment spots.

CASE 33. Obs. 1614. Left forearm: dorsal surface shows vasoconstriction spots and pigment spots; palmar surface shows vasoconstriction spots and pigmented skin near wrist. Right forearm: dorsum is red, mottled, and shows vasoconstriction spots and pigment spots; palmar surface also shows vasoconstriction spots and pigment spots.

CASE 34. Obs. 1617. Left forearm: dorsal surface shows vasoconstriction spots and a pigment spot on the wrist. Right forearm, vasoconstriction spots and pigment spots on both surfaces.

CASE 35. Obs. 1619. Left forearm: palmar surface shows vasoconstriction spots and pigment spots. Right forearm: dorsal surface shows vasoconstriction spots and pigment spots.

CASE 36. Obs. 1622. Left forearm: palmar surface, vasoconstriction spots and pigment spots.

CASE 37. Obs. 1625. Left forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots.

CASE 38. Obs. 1627. Right forearm: dorsal and palmar surfaces show pigment spots. Left forearm: dorsal surface shows pigment spots.

CASE 39. Obs. 1630. Right forearm: dorsum shows vasoconstriction spots and pigment spots. Left forearm: dorsum shows vasoconstriction and pigment spots.

CASE 40. Obs. 1632. Left forearm: dorsum shows vasoconstriction spots and pigment spots.

CASE 41. Obs. 1636. Right forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots. Left forearm: dorsum shows vasoconstriction spots and pigment spots.

CASE 42. Obs. 1638. Left forearm: palmar surface shows vasoconstriction spots and pigment spots.

CASE 43. Obs. 1641. Left forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots.

CASE 44. Obs. 1643. Left forearm: on dorsum, vasoconstriction spots and a small pigment spot.

CASE 45. Obs. 1645. Left forearm: palmar surface shows vasoconstriction spots and pigment spot near the wrist. Right forearm: palmar surface shows pigment and vasoconstriction spots.

CASE 46. Obs. 1648. Right forearm: dorsum shows vasoconstriction spots and pigment spots.

CASE 47. Obs. 1650. Right forearm: dorsum shows pigment and vasoconstriction spots.

CASE 48. Obs. 1652. Right forearm: dorsal surface shows vasoconstriction spots and pigment spots.

CASE 49. Obs. 1655. Left forearm: dorsum shows pigment and vasoconstriction spots.

CASE 50. Obs. 1658. Left forearm: dorsum shows vasoconstriction spots and pigment spots.

CASE 51. Obs. 1661. Left forearm: palmar surface shows vasoconstriction spots and pigment spots.

CASE 52. Obs. 1665. Left forearm: palmar surface shows vasoconstriction spots and pigment spots. Right forearm: dorsum shows similar conditions.

CASE 53. Obs. 1668. Left forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots.

CASE 54. Obs. 1671. Right forearm: dorsum shows pigment and vasoconstriction spots.

CASE 55. Obs. 1675. Left forearm: palmar surface shows vasoconstriction spots and pigmented skin near the wrist.

CASE 56. Obs. 1677. Right forearm: dorsum freckled and shows vasoconstriction spots; palmar surface shows vasoconstriction spots and three large pigment spots.

CASE 57. Obs. 1681. Left forearm: dorsal surface shows two small pigment spots, and near the wrist a few vasoconstriction spots. Right forearm: dorsal surface shows three small pigment spots and three vasoconstriction spots—the latter near the wrist.

CASE 58. Obs. 1697. Vasoconstriction spots and pigment spots on dorsal surfaces of both forearms.

CASE 59. Obs. 1705. Vasoconstriction spots and pigment spots on palmar surface of right forearm.

CASE 60. Obs. 1711. A few pigment spots on dorsum of right forearm and two vasoconstriction spots near them.

CASE 61. Obs. 1721. Vasoconstriction spot on dorsum of right forearm, near the wrist, and pigment spots.

Other observations connected with vasoconstriction spots appear in the records. A few of them are here copied because of their interest:

Obs. 67. On left forearm a vasoconstriction spot near the stroked area became more intense (in color) after the stroking.

Obs. 49. Vasoconstriction spot on left forearm, while under observation, became more intense in color and larger.

Obs. 60. On right forearm, vasoconstriction spots were observed becoming whiter.

Obs. 40. Vasoconstriction spot on right forearm was seen to enlarge while under observation.

Obs. 92. On left forearm, vasoconstriction spot was observed to have changes in its intensity while the patient slept after an attack of convulsions.

Obs. 118. Four vasoconstriction spots on right forearm and none on left. Shortly after, one appeared on left forearm.

Obs. 120. On right forearm, vasoconstriction spots were seen, which changed in intensity while being observed.

Obs. 123. Vasoconstriction spot on left forearm was seen to increase in intensity. Three vasoconstriction spots on the right forearm almost disappeared; that is, were seen to lessen in intensity in the course of a few moments.

Obs. 143. Vasoconstriction spot observed on ulnar side of the left hand.

Obs. 158. Vasoconstriction spots on both forearms. One on ulnar side of left hand.

Obs. 152. Vasoconstriction spots on both forearms were observed to become more intense after stroking.

Obs. 220. After stroking right forearm (in testing for reaction time) spots were observed to become more intense—whiter.

Obs. 145. Vasoconstriction spots on left hand became more intense after stroking left forearm.



Obs. 1698. Stroking near by a vasoconstriction spot (in testing for reaction time) was followed by the spot becoming whiter.

These latter observations, confirmed by many repetitions, are important for two reasons: they prove that the vasoconstriction reaction is a true reflex, as reflex action is the only explanation of the intensifying observed of the vasoconstriction spots after nearby stroking; and they demonstrate a lesion of the reflex neurone paths that allows stimuli to be reflected out of the normal paths of the reflex. These observations, moreover, suggested a method that at times is helpful in diagnosing a vasoconstriction spot. If we stroke near by a suspected spot, and the stroke is followed by intensifying of the spot coincident with the reflex vasoconstriction evoked in the stroked area, doubt of its true nature is removed by the vasoconstriction it actively manifests.

(To be continued.)

### Society Report.

#### THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN ORTHOPEDIC ASSO- CIATION.

ARMY MEDICAL SCHOOL, WASHINGTON, D. C.,  
APRIL 22-23, 1918.

(Continued from page 822.)

#### MECHANO-THERAPY.

PROF. A. E. BOTT of Toronto presented this subject. The use of appliances to assist physical re-education was dealt with, as also the question of the removal of mental disability associated with impairment of physical function. The principles had been applied to 300 cases of military returned patients. The majority of these were orthopedic cases. The work had been largely experimental in its early stages, and it had often been found necessary to modify apparatus, but not the principles. There were three important divisions of treatment: (1) special muscle training section, (2) gymnasium, (3) amputation. All treatments were made highly individual and specialized. The success of the gymnasium was found to depend largely on the personality of the medical officer in charge. A hopeful, active personality was essential. Patients were grouped

in classes according to specific disabilities, and special exercises were given to the development of the stump before fitting an artificial limb. The weakened muscles of the stump needed special development; and preservation of co-ordination of the part, which was quickly lost after amputation, was especially sought. The mental attitude of the patient received careful study and training. The men were particularly impressed with the fact that their condition could be greatly improved. After a careful first examination to establish the amount of disability, frequent re-examinations were made and progress charted. The appliances were used only as means to an end, and the purely temporary character of such assistance was emphasized. The apparatus was made as plain and unvarnished as possible and any complicated mechanism kept out of sight, in order to avoid impressing the patient with the seriousness of his disability.

#### DISCUSSION.

DR. C. F. PAINTER said that the most important thing he could say upon the subject of physiotherapy was in regard to the request which had been put to the members of the Association, relating to their attitude in the selection of the women who were to help the Government by their work as masseuses, in the physical re-education of the wounded and disabled soldiers. All orthopedic men who had to do with massage would realize that there was much difference in the workers in this branch. A renewed emphasis should be placed upon the importance of selecting the right kind of workers to carry out this particular method of therapy. The most careful selection was necessary to aid the work of military service in this respect. Not only were technically competent people necessary, but people of intelligence and education. The American surgeon was accustomed to pay very little attention to this work, and abroad it had been done very much better than in this country. In some of the countries now at war, part of their success had been due to the fact that they had been able to refit many of their men to return to the line, and this had been greatly facilitated by proper attention to massage. In order to keep the standard of this work high, orthopedic men should be careful in the persons they recommended for this class of work and in insisting

that the necessary qualifications be possessed by these individuals.

Dr. S. I. FRANZ said that he was very pleased to have the opportunity to hear these papers. He looked upon this work largely from a research point of view, and he knew little actually of mechanotherapy. In the experience gathered from neurological cases he found that the facts gathered by physiologists had been largely lost sight of. Cases of organic hemiplegias left to themselves had been considered hopeless, but physiologists had found that animals did not remain paralyzed if the hemiplegia was due to destruction in the motor center of the brain. This had led to work upon old hemiplegia, with successful results. Dr. Bott had made many very interesting statements in his paper, and one point brought out was the difference in results obtained in individual and collective treatment. Which was the better method? How far ought one to sacrifice the individual to the many? To deal with each patient separately, one would have to have a teacher to each patient, and this was manifestly impossible. The importance of the competitive spirit when training collectively must not be lost sight of. In the use of mechanical therapeutics there was the question as to how fatigue could be measured. Dr. Franz said he had been accustomed to use manipulation plus apparatus, because he could better control the method, not in the manner deprecated by Dr. Bott, but because he knew then the amount of work the muscles were doing. The combination of manipulation and apparatus gave better results than the use of either alone. In most work carried out special attention had been paid to the aspect of movement; that was especially true in poliomyelitis cases. One could not, however, divorce muscle response from nerve impulse. In movement, three factors were apparent,—force, extent, time. In poliomyelitis work, attention had been centered entirely on *force*. For perfect contraction there must be exerted a certain force to a certain extent in a certain time. More attention should be paid to these points. The next point was the attitude of the patient. This had attracted an enormous amount of attention because of what the Freudian School called "over-response."

It was highly important from the psychic side that the patient should feel *satisfied*. Certain patients would do things agreeable to them

and these things might prove to be just as good exercise as the one the physician would pick out for them to do. They would get results because their attitude was not antagonistic. Dr. Franz said he had obtained results, even though he had had to work with a bad class of patients,—insane hemiplegics, when he had obtained a satisfied attitude on the part of the patient. This willingness could often be obtained by saying exactly what one was trying to do, and by pointing to results obtained in other patients. As an example of this Dr. Franz said that he had one patient, an ignorant old Irish woman, paralyzed in the right arm and leg, who came to his laboratory. It was intensely hot weather, and he allowed her a fan if she would use it with the right hand. She learned to fan herself with the right hand in two days, and in a few weeks she learned to sew accurately. Her interest had been gained, and was an important part of the cure.

Dr. F. B. GRANGER said that in the question of physico- and electrotherapy, members of the profession were given a chance to stand or fall on their own merits. The most intelligent use was to be made of such measures if they were to have good results. The utmost coöperation in all branches of therapy must be given to military work, and if used intelligently as adjuncts these methods would give surprising results. The effects might be enumerated as: (1) chemical, (2) diathermal, (3) mechanical, (4) psychical. In regard to the first, chemical effects were obtained by the galvanic current in the use of ionic medication. Drugs could be introduced locally without strain on the digestive system. Using this method, the duration of local anesthesia by cocaine persisted better than by hypodermic injection. In regard to diathermy, the procedure was raised to the *nth* power and the tissues heated through and through, as under these conditions the skin offered no resistance and remained hot. By such means a piece of meat could be cooked from the center out. Tissues of growths could be controlled by this method. In regard to the physiological effects of electricity, these had been pretty well mapped out in their application to pathology. Deep-seated tissue could be given passive exercise; atonic muscles could be restored to normal, and intestinal atony could be treated by the sinusoidal current. In the study of the reaction of degeneration, it was found that there was an active contractile element;

there was also another element which would respond only to prolonged stimulation.

LIEUT.-COL. R. WILSON said in closing that they must all feel it a duty to concentrate their efforts upon reconstruction. In this matter it was necessary to make a compromise between individual and collective methods. The greatest amount of energy must be expended upon class work because of the large numbers who would have to be trained. It would be absolutely impossible to have an individual teacher for each patient. The best one could do would be to classify small numbers and give more attention to those who had to have individual treatment. It was a question of organization. The treatment should be homologous, and the same methods of teaching should be used from one end of the country to the other. This was done in Canada and would have to be done in the United States. Again, the simplicity of apparatus was important. One should not be misled by manufacturers who had ingenious devices for extracting money. In regard to appliances, an institution in Belgium had been observed, where all kinds of complicated apparatus were on view, with patients demonstrating its use. Only one patient was observed to take any interest in the tools and he was going through all the motions with great energy. The visitor pointed him out and remarked that he seemed to be getting a lot of good from the apparatus and asked what was the matter with him. They were told that he had no disability at all, but that he was the inventor of the machine and was trying to demonstrate it in order to sell it. The Bristow faradic coil with two windings was useful for promoting painless contractions. It was highly important that there should be a research laboratory in connection with the central school, where a large number of questions could be worked out. The questions of growth of bone and of nerve tissue could be investigated in such a laboratory. The orthopedic men, the physiologists and the physiotherapists could work and consult together on such questions. Among many new questions that came up, one was likely to forget what had already been done. The matter of electric anesthesia was one of these. The possibility of this method was well worth while considering. All workers should get together to consider the best methods.

#### BEDSIDE OCCUPATIONAL THERAPY AS PROPOSED FOR THE MILITARY HOSPITALS.

MAJOR HENRY R. HAYES gave this paper (by invitation). This was, he said, by no means a new procedure. The experience of civil life was being applied to military hospitals. In the Walter Reed Hospital, Washington, D. C., the principles of occupational therapy were being tried out. Hitherto, the army had been solely concerned with the return of the soldier to active duty, but there were many who would be fit only for restricted duty, and some for civil life. Ward occupations were instituted for those patients still in bed and in chairs, and was to be considered as prevocational, intended to stimulate the patient to return to regular work later. One essential of the treatment was that the work should be continuous. It was of the greatest consequence that the work should not flag or lapse owing to lack of material. Such occupations as weaving, rug and mat making, wood-carving, basketry, and bead-work could be well handled by patients. The work should be simple, easily finished and have commercial value. This would afford the patients training in concentration and coördination.

#### THE BRISTOW FARADIC COIL IN ORTHOPEDIC PHYSICAL THERAPY.

DR. ALBERT H. FREIBERG presented this paper. It was stated that the author did not believe that electricity had any specific curative effects upon the results of injury and disease of the muscles and nerves, yet it would seem likely to prove valuable as a means of accurately localizing functional stimulation. To do this by means of gymnastics or massage alone was admittedly unsatisfactory. The Faradic current, as hitherto employed, is impracticable, because if used with sufficient strength to produce efficient muscle contraction, it is very painful. By means of the Bristow coil muscle contraction might be produced without pain, even in the large muscles, such as the quadriceps of the thigh. A brief description of the coil and its construction were given, also its uses and the precautions to be observed in technique.

#### DISCUSSION.

MAJOR M. T. FOLEY said he had been working for three months and had at last succeeded

ed in getting orthopedic wards to take up the work. An old building was in use and the first curative workshop was established. The essential of the work was that it was to be entirely curative. Various grades of work were prescribed for patients with contracted fingers, with wrist-drop, or other disabilities. Typewriting was used in some cases, in others work with the fret saw. Convalescence was much hastened by the treatment and the medical results had been noticeable. Objections to the work had been made on the part of regular army surgeons who had not been able to see how the men were improved by it. Another point which they disliked was the untidiness in the wards, which was contrary to the ideas of regular military cleanliness.

#### FOOT PROBLEMS AND TREATMENT WITH UNSEASONED TROOPS.

CAPTAIN CLARENCE B. FRANCISCO, M.R.C., A.E.F., presented this paper. One of the first difficulties he said was to secure shoes large enough to meet new demands. The ordinary man in civil life walked little and the muscular development of the foot was prevented. A No. 9 foot usually tried to wear a No. 7 shoe. The strain of marching, with the addition of the heavy pack on the back, necessitated wearing of a shoe two sizes larger than in civil life. Trench foot had now come to be considered a preventable disease. The Thomas heel and the French marching strap had proved very useful in prevention of foot strain. The ordinary commercial arch support should be legislated out of the market. Men with marked deformities of the foot, such as hallux valgus, hammer toe, rigidity and flat foot, should not be sent abroad. Such cases were sure to break down under the unusual strain and to take up space in hospital needed for more sick patients. Examinations recently had been conducted rather with the view of preventing possible slackers from escaping, than with that of the fitness of candidates. Therefore, many men with useless feet, from the military standpoint, had been entered.

#### FOOT PROPHYLAXIS IN THE SOLDIER.

This paper was read by MAJOR J. T. RUGH, M.R.C. The subject dealt with the recognition of the potentially weak foot and its restoration to full strength and efficiency. This might sound in theory an easy matter, but its prac-

tical application was very difficult in the service. The problem might be divided into four headings: (1) feet, (2) shoes, (3) officers, (4) soldiers. Emphasis was laid upon the necessity of instruction to the officers in order that they might be able to detect in time the potentially weak feet. In the examination of 50,000 soldiers, 27½% were found to have functionally weak feet. The short heel and weak tendon was found a most potent cause of disability. In regard to the shoes, need of proper care in drying the shoe when wet was pointed out. The sock should be worn inside out, or with the smooth side next the foot, on a long march. Oiling the shoe would prevent its becoming stiff and hard. The Munson type of shoe would be found to fit 98% of the men satisfactorily and would save 8 out of 10% of foot inefficients. In regard to feet, all types were found among the men, and the young soldier up to 25 years of age was very adaptable. After that the foot became less elastic. Factors of weakness were: short heel tendons, hypertrophied scaphoid, supernumerary tarsus, congenital valgus, bad shoes, improper posture, muscle weakness, overwork. In regard to the soldier, there was always a certain factor of moral obliquity to be dealt with. There was a vast amount of difference in the mental attitude of the drafted man and the man who voluntarily enlisted. Influence of a man with foot disability was apt to spread unfavorably, and it was found necessary to treat the malingerers by detailing them to hard and unpleasant duties. The chief prophylactic measures employed were: (1) detection of weak cases, (2) proper alteration of shoes, (3) instruction as to walking, (4) exercises, (5) protection from strain. These measures were combined in the general scheme of restoring, where possible, the individual to fitness for service. It was felt that if a man was fit to work for himself and family he was fit in some way to serve the Government in the present crisis.

#### THE ORTHOPEDIC SERVICE AT PORT RILEY.

MAJOR J. P. LORD, M.R.C., gave this paper. When the examining boards began their work it was a matter of surprise that there were so many potential cripples. Of 5000 men measured, 76% were found with foot inefficiency in some form. A number of malingerers were always to be found, and there was a certain psychology behind this (often very persistent sham)



that needed special measures to deal with it. In regard to foot disabilities, there was an extraordinary number of cases of the following: over- and under-riding toes, exostosis of os calcis, of internal cuneiform, and of first and fifth metatarsals. Other disabilities noted were: abnormalities in hip joint, knee joint, disturbances due to excessive drill, arthritides and mouth infections, primary minor ailments, plus the psychoses, metastatic joint infections. In the advisory work, the orthopedic surgeon was secondary in function to the psychologist.

#### FOOT DISABILITIES IN THE MILITARY SERVICE.

This paper was given by MAJOR HAROLD D. CORBUSIER, M.R.C. This was a preliminary report on the reconstruction of recruits. The march constituted one of the chief duties of a man on campaign. A successful march placed the men at their destination in the best condition. Unless the soldier could reach his place in the firing line, he was useless as a rifleman. It was often seen in military manoeuvres that many stragglers limped into camp late at night, as they were not able to keep up with the march. Napoleon had said that the general who produced the best military shoe would do most to produce an efficient army. This was most true in the present crisis. The American foot seemed particularly prone to disability. The men must be trained to make the best possible use of the legs and feet. Battles were won and lost by legs as well as by rifles. Military service put the most unusual strain on feet accustomed only to the demands of civil life. Flat foot was a common cause of disability. Of 12,000 soldiers, 960 had flat feet to some degree. Among the drafted men it was supposed that there would be exaggerated symptoms, but it was found that there were 9.25% flat feet among the volunteers and 7.25% among the drafted men. However, there were always to be found cases of genuine malingerers. The psychology of the men was a matter for careful observation. It was unwise to inform the malingerer that he was suspected. The best treatment was by hard and unpopular duty. These men often asked to be sent back to regular line duty of themselves, the treatment having proved too vigorous for comfort.

(To be continued.)

#### Book Review.

*Infant Feeding.* By CLIFFORD G. GRULEE, A.M., M.D., assistant professor of pediatrics at Rush Medical College (in affiliation with the University of Chicago); Attending Pediatrician to Presbyterian Hospital, and to the Home for Destitute Crippled Children, Chicago. Third edition, thoroughly revised. Octavo of 326 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1917.

In this, the third edition, the author has incorporated the advances in the knowledge of infant feeding and of the infants' metabolism which have been made in the last few years. The chapter on absorption and metabolism has been considerably enlarged and the others revised where it was necessary. The general plan of the work is the same, however, and its merits and defects the same as in the past. It gives a very fair idea of the teaching of the German School of Pediatrics.

*War Nursing.* A Textbook for Auxiliary Nurses. By MINNIE GOODNOW, R.N., a War Nurse in France. Philadelphia: W. B. Saunders Company. 1918.

This textbook is written by a nurse, who has served in France in the present war, for women who realize the need of America and wish to serve their country in the capacity of nurses, even though they have not had hospital training. The book deals with the care of the wounded from the time of their entrance into the hospital to their dismissal, and gives adequate information with regard to the nurse's duty to her patients. It is admittedly a textbook of nursing as applied to the present war, and is not meant for the graduate, but for the auxiliary—the Nurse's Aid—who has had little or no previous training, but who wishes to learn the fundamental things which will be of use to her in war service. It might well be used in teaching Red Cross or other training classes.

The work contains only material applicable to military nursing, is adapted to war conditions and war hospitals. It covers the ground thoroughly, from the etiquette and discipline to be followed in the hospital ward, to the actual assistance which may be rendered in the care of wounds, bed-making, bathing, diet, medicines, bandaging. No attempt is made to disguise the difficulties and hardships attendant upon war nursing. It is written by a woman who has herself seen much service in the present war, and who knows conditions in their actuality.

**A Bibliography of the War Cripple.** Compiled by DOUGLAS C. MCMURTRIE. New York City: The Red Cross Institute for Crippled and Disabled Men. 1918.

The extent of public interest in the rehabilitation of crippled soldiers is evidenced by this first publication of the Red Cross Institute for Crippled and Disabled Men, entitled "A Bibliography of the War Cripple," compiled by Douglas C. McMurtrie. There are listed no less than 1022 separate books, reports, and articles dealing with the reconstruction and re-education of maimed men. Practically all the material has appeared since August, 1914.

The list includes entries referring only to physical cripples, and not to blindness, deafness, and mental derangement incurred by soldiers. The material referred to is largely in French and German. Of the entries in English, more have been published in America than in England, in spite of the comparatively recent entrance of the United States into the war.

This bibliography is the first of a series of scientific publications to be issued by the Red Cross Institute for Crippled and Disabled Men. It may be obtained without charge by addressing the office of the Institute at 311 Fourth Avenue, New York City. The list, which is practically complete, will be found invaluable by any one seriously interested in the American program for reconstructing disabled soldiers.

**Elements of Pediatrics for Medical Students.**

By ROWLAND GODFREY FREEMAN, A.B., M.D., Adjunct Professor of Pediatrics, New York University and Bellevue Hospital Medical School; Attending Pediatricist to The Roosevelt Hospital, New York, etc.; ex-President of The American Pediatric Society. New York: The Macmillan Company. 1917.

The author states in his preface that the aim of this little book is to impart in a simple and concise form information regarding the characteristics of children and the problem of keeping infants and children well by proper régime and feeding, and, in addition, to summarize the important facts to be obtained by physical examination, by examination of the urine and feces, and by roentgen-ray examination, and to review briefly the essentials of diagnosis and treatment. It seems to us that he has attempted the impossible in endeavoring to give a satisfactory presentation of so large a subject in so small a space. For this reason the book is necessarily incomplete and superficial and contains many half-truths and minor misstatements. It is hardly suitable for mothers, and is not complete or accurate enough to serve as the basis for the training of students. We wish that the author would rewrite it in about four times as many pages.

**The Conduction of the Nervous Impulse.** By KEITH LUCAS, Sc.D., F.R.S. Monographs on Physiology. Longmans, Green and Company. 1917.

No number of the series of Monographs on Physiology will be more welcome than this, and certainly none has or will have more permanent classic value. In the death of Keith Lucas a little over a year ago, physiology lost its ablest worker in the problems of fundamental neurology. It is indeed fortunate that just prior to the outbreak of the war Lucas had delivered seven lectures at University College in London. These summed up his work and that of his pupils upon the processes of excitation and conduction in muscle and nerve, and were to have been amplified to meet the needs of monographic publication. From the outbreak of the war until his death in October, 1916, in an aeroplane accident, Lucas himself was too deeply in government work to think of the physiology of the nerve impulse, but the nucleus of the volume was at hand and is now given to us through his pupil, Adrian.

It will come as a pleasant shock for those who fear the matter which such a volume must contain to find how beautifully easy abstract physiology becomes in the hands of Lucas, who was a master not only of experimentation, but also of expression. While fundamental facts in science are usually and properly the simplest things in the world, few of their discoverers have the power of making them so for others. Readers of this book will have no doubt of the author's success in both lines.

The monograph presents a fairly complete picture not only of experimental results but of the methods used in obtaining them. Thus there is excellent discussion and description of the measurement of the nerve impulse by interpolation of a region of decrement between the point of stimulation and the recording muscle. The application of this method in Adrian's classical demonstration of the "all or none" character of the impulse, is given early in the book, together with a critique of other work upon impulse evaluation. The significance of regions of decrement in normal conduction between nerve and muscle, and in reflex arc conduction, follows very naturally, as does discussion of summation in similar positions.

It is refreshing to watch the enmeshing of the philosophical vagaries of Verworn, and the modern German school of neurology, in the net of close analytical experimentation which Lucas has so untiringly woven about them. Both clinical and experimental neurologists will benefit by the elimination of speculation from the fundamental conceptions of their work, and it is a great pleasure to recommend the monograph to both classes of observers of the physiology of the nervous system.

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## BLOOD PRESSURE FINDINGS IN DISEASE.

THE real value of the accurate estimation of the blood pressure by means of the many types of blood pressure apparatus is overlooked if confined to the mere estimation of the number of millimeters of mercury that the systolic or diastolic pressure registers in every case that happens to come up for medical examination. In fact, high or low blood pressure dissociated from tangible disease has very little significance except in a few instances of excessively high pressure, when the condition is apparent even without this instrument of precision. Yet it is by no means our intention to minimize the value even of these abstract findings, but rather to emphasize the importance of continually determining the state of the blood pressure during operations and during the

course of disease. Blood pressure readings will influence the prognosis as well as the treatment. It is now fairly well established that the taking of the blood pressure before determining upon any but the most urgent surgical operations will give valuable information concerning the amount of cardiac efficiency, and in this way anticipate sudden cardiac failure during the anesthesia. A fall of blood pressure after mild exertion is an indication of a deficient cardiac reserve, for in ample cardiac reserve mild exertion causes a rise in blood pressure. The taking of the blood pressure during the course of the anesthesia will often give warning of impending heart failure long before the signs of actual failure require drastic measures in an attempt to save the patient's life. In suspected internal hemorrhage, the marked lowering of the blood pressure usually corroborates the suspicion. Excessively high blood pressure in impending eclampsia demonstrates the need for immediate depletive measures.

During the course of the infectious diseases constant blood pressure readings will, perhaps, give better clues to impending complications than the pulse or the thermometric readings. In pneumonia, it is usually found that when the systolic blood pressure reading, expressed in millimeters of mercury, does not fall below the pulse rate, the prognosis is good; when it does, the most active stimulation is necessary to save life. Distinct fall of the blood pressure during the course of diphtheria is an indication of grave cardiac failure and probably a fatal outcome. In scarlet fever the sudden rise of the blood pressure indicates renal disturbance, even before the urinary findings make their appearance. In typhoid fever the range of the blood pressure is usually somewhat lower than obtains otherwise, but a marked and sudden drop indicates hemorrhage, even though the bleeding is not otherwise apparent. Perforation and peritonitis, on the other hand, are usually accompanied by a rise in pressure. Low pressure is characteristic of the course of tuberculosis, but is, in all probability, an indication only of the generally low vitality.

Unless the blood pressure instrument is constantly used in disease much valuable aid to diagnosis, prognosis and treatment will be lost. While the mercury instruments are much the

best to use, they are not so easily portable as the spring instruments. In the field the latter instruments are being used for this reason.

### TUBERCULOSIS AND PREGNANCY.

THE denial of the privileges of marriage and maternity to advanced cases of pulmonary or other forms of tuberculosis can, of course, allow of no exceptions. When, however, this question arises in respect to cases that are undoubtedly arrested for a considerable period, a just decision is very difficult to make. In this connection it must be remembered that healed tubercular lesions are so often discovered in persons in whom they were not otherwise suspected that spontaneous recoveries without affecting the future life activities of such individuals must be very large. Moreover, modern prophylactic measures and rational methods of treatment reclaim so many of the undoubted active cases that the tubercular cases which must be denied these privileges become comparatively few. Walsh (*American Journal of Obstetrics*, February, 1918) points significantly to the fact that the number of cases of pregnancy that come through without additional hurt to the mother, when the tubercular condition has been arrested for a considerable period, is rather large. For this type of tubercular prospective mother, a strict regimen, enforced during the whole period of pregnancy, gives hope of good results. The question often arises whether to allow pregnancy in active tubercular cases to go to term. The violence of the operation for abortion, with its immediate and remote mortality possibilities, is not less unfavorable than allowing patients to go to term without interference. The shock, the loss of blood, and the intoxication of the anesthesia are, perhaps, a more severe burden than the prolonged wear on the mother from the pregnancy. The vitality of the child of an active case of tuberculosis does not, of course, enter into this question. An abortion undertaken with this point in view would be tantamount to an act of euthanasia—and we are hardly ready for that. Besides, tuberculosis is not hereditary. The most that can be transmitted is a susceptibility to the tubercular infection, against which, perhaps, the offspring of such a parent must be

especially guarded. This would be a factor whether the father or the mother were tubercular, but to a somewhat lesser degree in the former case. The question of infection with tuberculosis in the offspring of tubercular parents depends upon the amount of actual contact that the child has with its tubercular parents. The sooner it is removed from such contact the less the chances of infection.

The formula has often been advanced that an arrested tubercular mother may have one child with safety, a second child only with danger, but a third one, never. While pregnancy is a physiological process, it is a physiological activity that can be undertaken only by those whose activities are not engaged in overcoming disease processes.

### MALIGNANT DEGENERATIONS.

IN spite of the tireless work carried on in this connection, the basic causes of malignant disease are as obscure as ever. Yet it is recognized that certain conditions have a tendency to originate malignant disease, and that certain benign growths are prone to malignant degeneration. But these observations are merely clinical, and have no relation of cause and effect. Although any campaign for the prevention of malignant disease is directed against the malignant degeneration of benign growths or irritative conditions, it is erroneous to speak of a precancerous stage, at least in so far as our present knowledge of this disease goes. Nevertheless, it seems clinically that those benign tumors that are composed of elements of all three of the original germinal layers are more prone to malignant degeneration than those tumors composed of single tissue elements. Likewise, when the benign growth is composed of young and undifferentiated cell elements and is present in tissues in which such cell elements are usually alien, the likelihood of malignant degeneration is large. The presence of young cell elements in tissues where older cell elements would be expected often determines the decision on the probable nature of the tumor where that is in doubt, and decides the question of appropriate radical measures in anticipation of future and positive degeneration. The removal of all be-



nign tumors is, of course, impracticable and, in all likelihood, entirely unnecessary, and the removal of sections for laboratory diagnosis is not condoned by every one, on the ground that, if malignant, the cell elements composing the growth will be disseminated through this procedure.

On the other hand, tumors that are on the surface of the body are continually under observation and more easily controlled than those within the body. The campaign against malignant degeneration can have little effect against these, for usually when symptoms of a growth appear the malignant nature is already well established. In any event, it is generally recognized that chronic irritations of any tissue or of benign growths are the most potent causes of malignant degeneration. The malignant degeneration of gastric ulcers, certain uterine conditions, lingual ulcers, etc., is universally accepted as a very strong probability. Perhaps the strongest elements in the campaign to prevent malignancy is the prevention and healing of chronic irritative conditions and the early recognition of actual malignant disease—perhaps even more than the fear of spontaneous degeneration of benign growths.

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#### ANTISEPTICS IN SURGERY.

CARE against the introduction of foreign materials, especially of pathogenic organisms, into the field of operation or into wounds of any nature is still the crux of surgical asepsis upon which is founded so much of the modern progress in surgery. On the other hand, the removal of foreign material or pathogenic organisms once they have made their way into the fields of operation or into wounds, often presents a difficult problem. Yet the use of strong antiseptics for this purpose is now universally condemned. The notion that strong antiseptics will render a wound aseptic by destruction of the pathogenic organisms contained therein is too crude for discussion. The antiseptics that have the power of destroying bacteria in the tissues have the power, likewise, of destroying tissue, and it is the devitalized tissue that furnishes the medium for the growth of pathogenic organisms. The resistance of bacteria is, as a rule, not less than

that of the tissues to antiseptics. While healthy, undevitalized tissue must be depended upon for the maximum bactericidal power, devitalized tissue, no matter how brought about, is the most potent factor in infection and delayed healing. The bactericidal power of the tissues is the best antiseptic and must never be interfered with. Besides, it must not be expected that bad surgical technic will be glossed over by antiseptic treatment. Nor is it a fact that antiseptics are better wound cleansers than non-antiseptic solutions. The rapid removal of devitalized tissue will remove the only barrier against the benign action of the bactericidal power of the normal tissues. Kindness in the treatment of the individual tissues by restraining from rough handling or the application of irritant or caustic antiseptics is as efficacious in overcoming intractable wound conditions as is kindness to the individual in overcoming vicious personal inclinations. Abusive scrubbing of the skin or wound with the use of strong antiseptics for sterilization purposes must be relegated to bygone surgery. There is as much technical skill, if not more judgment, required in the treatment of wounds, than in the technic of major surgical operations. The strides in surgery in the present war have been along the lines of reclamation of tissues and members rather than along the lines of heroic surgery, requiring usually the loss of a maximum amount of tissue, and this has been accomplished by conservatism in every phase of surgical procedure rather than otherwise.

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#### MEDICAL NOTES.

HEALTH STANDARDS AND CARE FOR THE IMMIGRANT.—In response to the nation-wide demand for better and more thorough ways of Americanizing the immigrants in the United States, the Carnegie Corporation has undertaken a national study of the methods of Americanization now in use. The work is to be done by ten divisions, which are to conclude the study in a year.

The Division on Health Standards and Care will be under the direction of Michael M. Davis, Jr., Director of the Boston Dispensary. The aim of this particular division is to learn what the health agencies of the United States

are doing to teach the immigrant our American standards of health. A special effort will be made to study methods which have been successful in some localities, and to develop from these recommendations for communities having similar problems. The Division earnestly desires the coöperation of individual physicians, and of hospitals, dispensaries, health departments, nursing and medical associations, industries, and all the national organizations working to promote the public health. Information is sought concerning health conditions and problems among the foreign-born of different races and localities, and concerning methods of health care and education which various organizations have found effective among them. It is hoped that by means of this national survey, material can be secured which may prove helpful to all the many individuals and groups which are striving to make the immigrant a better American citizen. It is intended to make a special inquiry into alleged serious evils due to quack practice among immigrants.

Mr. Michael Davis will retain his connection with the Boston Dispensary, but will give a considerable share of his time for one year to the national study. The position of Assistant Director has been established by the Boston Dispensary and Mr. Joseph J. Weber has been appointed. Mr. Weber has been connected for some years with the hospital and public health work of the State Charities Aid Association of New York, and for the past twelve months has been executive secretary of the Mayor's Hospital War Service Committee in New York City. He brings to Boston a wide experience in public health service.

**ILLINOIS PLAN FOR TUBERCULOUS SOLDIERS.**—The plan adopted by Illinois for providing care for returned tuberculous soldiers is an interesting illustration of a practical working agreement between a State Department of Health, a State Tuberculosis Association, and the American Red Cross. According to the agreement, the Central Division of the American Red Cross, through the Home Service Sections of its local chapters, will provide care for returned tuberculous soldiers in the interim between their return to their home communities and the time that more permanent provision is made for them, and shall provide

one-third of the expense for the more permanent care. Immediately upon the return of a tuberculous soldier, the Home Service Section of the American Red Cross will ascertain the essential facts concerning him—his location, physical and financial conditions, his educational standards, and home conditions. An expert examination and diagnosis will be made in the case of each soldier by the Illinois Tuberculosis Association, and reports will be submitted to the State Department of Public Health so far as they may affect the control and prevention of communicable diseases. Under no circumstances will the American Red Cross countenance the housing of a returned tuberculous soldier in a county almshouse, except when absolutely unavoidable. The American Red Cross will pay one-third of the expense of care, and the Illinois Tuberculosis Association will exert all possible influence upon local individuals and public and private organizations to provide for the remaining two-thirds of the cost of permanent care. The Illinois Tuberculosis Association will require of institutions, physicians, or other agencies to whom the care of tuberculous soldiers is entrusted, complete reports of progress.

**MALARIA IN RUMANIA.**—An article in the *Lancet* of March 9, 1918, makes the following interesting statement concerning malaria in Rumania:

"Ever since the time of Ovid, who laments the fevers so prevalent at Tomi (in the Dobrudsha), Rumania has been known to suffer severely from malaria, which overspreads the whole country with its great plains, reedy marshes, and slow rivers liable to widespread inundations. The region most heavily attacked is that between the Sereth and the Pruth, but no part of the country escapes. Sailors used to get higher pay for sailing through the Dobrudsha, so great was the risk of fever, which occurred up in the mountains as well as along the water-courses. Babes reported in 1904 that in 7000 post-mortem examinations he had rarely missed seeing evidence of malarial infection. Cases were as frequent in Rumania as they used to be in Italy, but the less deadly tertian fever was more common. The carrier anopheles are found everywhere. In 1899 it was attempted to dry up the marshes by planting there willows and poplars, but as the uncomprehending peasants delightedly burned the trees for fuel this experiment failed. In 1902 orders were given to embank the rivers to prevent floods and reduce malarial infection, but the good was too little clear, too speculative,

and nothing material was achieved until in 1907 malaria prevention was linked to what people call a practical purpose, and the reclamation of areas liable to floods was undertaken in order to increase the arable acreage, a benefit riparian owners and occupiers could well understand. In 1904 Babes, with his colleagues Cantacuzanu, Sion, and Irimescu were appointed a committee to select some method of quinine prophylaxis, and they chose Koch's system, which directs that 15 gr. of quinine shall be given every ten days. Their report was adopted and results were not long delayed: of 6000 persons protected, only 1% fell sick; of 16,000 left untreated, 18% contracted marsh fever. Although only 2% of the population was reached by this prophylaxis, a great alteration in the situation had been achieved, and malarial fever cases were becoming rapidly fewer when, in 1913, the Bulgarian War distracted all the energies of the country and it began to fall back into its old state of a hundred years ago. Dr. F. Pielsticker declares, however, that the German Army when invading Rumania was able to secure itself against malaria by the prophylactic measures found useful in Macedonia."

#### WAR NOTES.

**TUBERCULOSIS IN THE UNITED STATES ARMY.**—Col. George E. Bushnell of Washington, D.C., director of tuberculosis work in the United States Army, announced at the 14th annual meeting of the National Tuberculosis Association, that only .783 of 1% of the men in the army reexamined since June 6, 1917, are victims of tuberculosis. The Government has made ample provision for the care of such cases and the reclamation of the patients for active work in the industries of the nation.

**DR. CARREL'S NEW HOSPITAL IN FRANCE.**—Dr. Alexis Carrel, whose hospital at the front was recently destroyed by the Germans, is building a new hospital at Noissiel, where he will continue his experiments and treat the gravest cases of wounded. He is organizing, also, laboratories at St. Cloud, where he will study treatment of hemorrhages.

**ONE HUNDRED AND EIGHTY-FOUR SICK AND WOUNDED SOLDIERS LANDED.**—One hundred and eighty-four sick and wounded soldiers were landed in the United States during the week ending May 31. They were sent to army hospitals. The previous week sixteen arrived.

**DR. HUNT TO HEAD UNIT.**—Dr. Barbara Hunt of Bangor, who is to do civilian work in the devastated regions of France, as a mem-

ber of the American women's hospitals, has been placed in charge of the first unit, which will sail soon. This organization is under the administration of the war service committee of the Medical Women's National Association and has the sanction and coöperation of the Red Cross. The work will be mainly among women, old men and children.

#### BOSTON AND MASSACHUSETTS.

**WEEK'S DEATH RATE IN BOSTON.**—During the week ending June 8, 1918, the number of deaths reported was 216, against 224 last year, with a rate of 14.36, against 15.12 last year. There were 39 deaths under one year of age, against 31 last year.

The number of cases of principal reportable diseases were: diphtheria, 45; scarlet fever, 10; measles, 280; whooping cough, 60; typhoid fever, 1; tuberculosis, 72.

Included in the above were the following cases of non-residents: diphtheria, 5; measles, 3; whooping cough, 1; typhoid fever, 1; tuberculosis, 11.

Total deaths from these diseases were: diphtheria, 2; measles, 1; whooping cough, 3; tuberculosis, 27.

Included in the above were the following non-residents: diphtheria, 1; tuberculosis, 1.

**APPOINTMENT OF DR. COON.**—Dr. William Coon, of Haverhill, has been appointed director of health and sanitation for the United States Shipping Board. He will have his headquarters at Philadelphia, and will have charge of health and sanitation in all the shipbuilding yards in the country.

**TRAINING SCHOOL OF PSYCHIATRIC SOCIAL WORK.**—The Training School of Psychiatric Social Work, conducted by Smith College, Northampton, and the Psychopathic Hospital, Boston, is under the auspices of the National Committee for Mental Hygiene, and is designed as a war emergency course. Its purpose is to prepare social workers to assist in the rehabilitation, individual and social, of soldiers suffering from nervous and mental diseases, including war-neuroses and the so-called "shell-shock." Aside from the war contingency, these workers would also be of permanent value in civilian neuropsychiatric work as assistants to hospitals, courts, schools, out-patient departments, and social agencies.

The value of this special division of social work has been demonstrated in the care of neuroses of civil life in a number of out-patient departments. The demand for such workers should be met by immediate preparation.

The length of the course is eight months. The academic instruction will be given at Smith College from July 8 to August 31. The practice work will be given at various centers where there are opportunities for social work with psychiatric cases under direction of trained social workers. The major studies in the course will be sociology, including methods of social case work, psychology, and social psychiatry. Minor studies will include hygiene, occupational therapy, military usage, and the writing of records and reports.

**INDUSTRIAL HEALTH CONFERENCE.**—At a conference recently held in New Bedford, under the auspices of the State Board of Labor and Industries and the Massachusetts Medical Society, the principal subject discussed was industrial health, from the standpoints of both the employee and the employer.

**STATE ASSOCIATION OF NURSES.**—The 15th annual meeting of the Massachusetts State Nurses' Association was held on June 11, at 525 Boylston Street. Sessions were held by the Massachusetts League of Nursing Education and the Private Duty Nurses' League. All nurses in war service were asked to send notice of address and assignment to the corresponding secretary, Miss E. P. Davis, 21 Walnut Avenue, Norwood, Massachusetts. As a war measure, the annual Red Cross dinner was omitted this year.

**NEW ENGLAND DEACONESS ASSOCIATION.**—The New England Deaconess Association has submitted its annual report for the year 1917. In May, the General Deaconess Board held an annual convention. In September, one of the most profitable meetings of the year, the "Round Table Convocation," was held. This year, for the first time, deaconesses, other than superintendents, have served on the Board of Managers; this has increased the efficiency of the Board. In response to war needs, fifty hospital beds were offered to the Government for the care of needy soldiers and sailors; a portable ward has been erected on the hospital grounds for this purpose. Plans

have been made for fresh air work at the Haverhill Home. The report includes mention of the activities of the Training School for Christian Service, the Home in Boston, the hospitals in Boston and Concord, and the Home for Aged Methodist Women.

**CERTAIN DIETARY ESSENTIALS.**—The Massachusetts Public Health Bulletin for April, 1918, contains an interesting article entitled, "Certain Dietary Essentials." It describes the ideal diet as one which supplies, in the most palatable and easily digested form, all of the body requirements. Besides the generally recognized constituents,—plenty of water, protein, energy-forming foods, mineral substances, and a sufficient amount of coarse food,—there are two other substances, called fat-soluble A and water-soluble B, which an adequate diet must contain. A lack of these two substances results in beriberi and serious eye disease, causes failure of normal growth and development, and makes the individual less resistant to disease. Water-soluble B is contained in nearly all of our common foodstuffs. In order, however, to include fat-soluble A, milk fats, egg yolk, leaf vegetables, or animal organs, must be present in the diet. Of these, whole milk is the most economical and valuable, for it is easily obtainable and contains not only fat-soluble A, but also water-soluble B, protein, mineral substance, and sugar.

#### NEW ENGLAND NOTES.

**MAINE PHYSICIANS ELECT NEW OFFICERS.**—The house of delegates of the Maine Medical Association have elected the following officers: President, Dr. C. M. Coombs of Waldoboro; vice-presidents, Dr. John Sturgis, Auburn; Dr. Charles W. Bell, Strong; secretary and treasurer, Dr. B. L. Bryant, Bangor; council of delegates, Dr. John F. Thompson, Portland; Dr. E. V. Call, Lewiston; Dr. Byron F. Barker, Bath; Dr. Oliver W. Turner, Augusta; Dr. W. N. Minor, Calais, and Dr. Charles H. Burgess, Bangor.

**HEALTH SURVEY OF MIDDLETOWN, CONN.**—A recent health survey of Middletown describes the sanitary conditions of the city, and offers numerous suggestions for improvements. The water supply ought to be made safer by chlorination, supplemented by weekly bacteriological



examinations. Sewage wastes ought to be better disposed of; all refuse should be effectively screened from flies and mosquitoes. Concerning organization, it is suggested that a board of health be created with full powers to make regulations to safeguard public health. One man, at least, should be fully trained for the work and should give his whole time to it; all details of administration and appointment of subordinate officers should be in the hands of this health officer. It is recommended that the medical inspection of school children be transferred from the Board of Education to the Department of Health. In the control of communicable diseases, it is advised that prompt reporting of such diseases as diphtheria, typhoid fever, and tuberculosis be insisted upon. Fumigation after the termination of such a disease, because it is costly and not effective, should be abandoned. Isolation of patients and proper placarding should be continued. It is recommended that a public health nurse be appointed to visit cases of communicable disease and teach the proper methods of isolation, of the sick.

Further recommendations are: steps should be taken by the Health Department for the systematic detection and control of "carriers;" the supervision of the sanitary conditions of meat and other food products sold in Middletown should be extended and systematized; the town should provide a small slaughter house; there should be more frequent inspections of the farms and more frequent bacteriological analyses of milk; a rigid system of licensing milk dealers and grading milk should be instituted; efforts should be made to secure the efficient pasteurization of milk. The report describes infant welfare work, and recommends that the Health Department initiate a movement for the improvement of obstetric service by systematic supervision and education. Organized campaigns should be instituted for the control of tuberculosis and venereal diseases. The report contains statistics concerning the finances, population, death rate, and diseases of Middletown.

### Obituary.

CHARLES HERBERT WILLIAMS, M.D.

CHARLES HERBERT WILLIAMS, M.D., died at Cambridge, June 9, 1918, of heart disease, aged 68 years.

Dr. Williams was born in Boston, April 19, 1850, the eldest son of Dr. Henry W. Williams, the first professor of ophthalmology in the Harvard Medical School. He was graduated from Harvard, A.B., in 1871, and M.D. in 1874, then spending several years in Europe, studying ophthalmology and settling in practice in Boston with his father. He did some pioneer work in color blindness. He married Caroline Fisher, daughter of George J. Fisher of Brookline, in 1884, and the following year accepted a position with the Chicago, Burlington and Quincy Railway as director of its medical and health insurance interests. Returning to Boston in 1895, he resumed the practice of ophthalmology with his brother, Dr. E. R. Williams, residing in Milton. He was possessed of great mechanical ability and was most successful in the diagnosis and treatment of errors of refraction. Among the medical societies in which he held membership were the American Ophthalmological Society, Chicago Ophthalmological Society, American Medical Association, Massachusetts Medical Society.

Dr. Williams is survived by his widow and two children.

### Correspondence.

#### A PROTEST AND A DEFENSE.

Fall River, Mass., June 7, 1918.

Mr. Editor:

In looking over the issue of the JOURNAL this week I am pained and surprised to find, under the title of "Correspondence," a letter from the pen of George W. Holmes of Boston, casting aspersions upon the ability and name of Dr. M. N. Tennis, a member of The Massachusetts Medical Society and a roentgenologist of high ability.

I thought the day had passed when petty jealousies and low methods could be brought into the JOURNAL for discussion. I am a member of the staff of the Union Hospital, Fall River, Mass., and Dr. Tennis was for a number of years roentgenologist at that institution. It seemed to me that the time had passed when a clique or cliques could dictate as to who would practice medicine or roentgenology in a city.

It was always my opinion that Democracy meant freedom of thought and work, but this letter reveals that we have in Boston a certain unwritten provision that "You shall not pass" unless we say so.

Please give this letter the same prominence that you accorded Dr. Holmes', because I believe, and a great many men who have consulted with Dr. Tennis also believe, that this is an attack upon his character and ability. In other words, the letter would give the impression that he was not honest and had no ability, but of course this is far from the truth, and it is to be regretted that an attack of this nature should be allowed to creep into the JOURNAL.

Yours very truly,

E. A. MCCARTHY, M.D., President,  
Fall River Medical Society.